SECTION A MTU ERROR CODES AND TROUBLESHOOTING

A.1 Introduction

Section A provides MTU troubleshooting based on the 2-digit error code displayed on the MTU front panel. Begin troubleshooting by looking up the error code in the MTU Error Code Table beginning on the following page (A0001). A description of the error and a reference to the troubleshooting flow chart (MAP) is given for each error code.

In all cases for which the correction action involves replacing more than one PCA (printed circuit assembly), the recommended method is to replace the first PCA listed and determine if the problem has been corrected. If the problem has not been corrected, replace the second PCA listed.

Prior to PCA or subassembly replacement, the user should perform any checks and adjustments (Section K) associated with the problem description. The same checks and adjustments should also be performed after corrective maintenance actions. The user should also enusre that the shorting plugs on a replaced PCA are the same on the replacement PCA.

A field tester is normally connected to the MTU logic gate during MTU troubleshooting. Refer to Part I of this manual for instructions on how to connect and operate the field tester. To assist in MTU troubleshooting or checkout after corrective action, the diagnostic routines (Section C) can be performed.

A.2 MTU Error Code Table

Error code	Description	Cause of error	Refer to
00	When the Unit Check is lit on the MTU front panel, a parity error of the ROM is detected before execution of the microprogram.	Hardware error	A0030
01	Faulty operation of arithmetic logic unit (ALU) during power on.	Hardware error	A0030
02	Faulty execution of a microprogram subroutine during power on.	Hardware error	A0030
03	Faulty operation of register at file address $00 through $03 during power on.	Hardware error	A0030
04	Faulty operation of register at file address $04 through $07 during power on.	Hardware error	A0030
05	Faulty operation of register at file address $08 through $0B during power on.	Hardware error	A0030
06	Faulty operation of generated register at file address $0C through $0F during power on.	Hardware error	A0030

Error code	Description	Cause of error	Refer to
07	Faulty operation of timer 0 at file address $10 during power on.	Hardware error	A0030
08	Faulty operation of timer 1 at file address $11 during power on.	Hardware error	A0030
10	Faulty operation of the counter at file address $12.	Hardware error	A0030
11	Faulty operation of general register at file address $13.	Hardware error	A0030
12	There is inconsistency between 3 signals o Tape present (TP) o Beginning of tape (BOT) o End of tape (EOT)	Hardware error	A0031
13	ROMPE (ROM Parity Error) signal, RGPE (Register Parity Error) signal, or HUBLK (Hub Lock) signal is set incorrectly.	Hardware error	A0031
14	Check contents of MTU Register 18.		
15	TSFL (TestFlag) signal or TST (Test Start) signalis set correctly.	Hardware error	A0031
16	Faulty operation of the register at file address $18.	Hardware error	A0030
17	ONL (Online), INATRP (Interruption), UCHLD (Unit Check Hold), TUCHK (Tape Unit Check), GAPCT (Gap Control), or TWA (Tape Warning Area) signal is set incorrectly.	Hardware error	A0031
18	RTLAL (Right Tape Loop Alarm), LTLAL (Left Tape Loop Alarm), HUBAL (Hub Lock Alarm), ECER (erase Circuit Error), WCER (Write Circuit Error), or WRIST (Write/Read PCA Installed) is incorrect.	Hardware error	A0031
19	CLINF (Column In File), CLINM (Column In Machine), or EMMVD (Error Marker Moved) signal is set incorrectly.	Hardware error	A0031
20	Failure in STEP6 (Step 6 ALL) - PE level setting is incorrect.	Hardware error	A0031
21	WVON (Write Voltage ON), ECON (Erase Current ON), AGCOK (SAGC OK) or VEL0.1 (Velocity Mode 0.1) signal is incorrect.	Hardware error	A0031

Error code	Description	Cause of error	Refer to
22	One of the read data detecting signal, TMSR 0 - 7, (time sensor 0 through 7) is incorrectly set at '1'.	Hardware error	A0031
23	One of the read data detecting signal, TMSR 0 - 7, (time sensor 0 through 7) is incorrectly set at '1'.	Hardware error	A0031
24	GOB (Go Tag), STS (Status Tag), TMSR8 (Time Sensor 8), DNOIS (Detected Noise), DBOB (Detected Beginning of Block), DTM (Detected Tape Mark), or 0 (Logical '0') signal is incorrectly set at '1', or DIBG (Detected Inter Block Gap) signal is incorrectly set at '0'.	Hardware error	A0046
25	TMSR8, DNOIS, or DBOB signal is set at '0', or DIBG signal is set at '1'.	Hardware error	A0031
28	A parity error is detected in ROM during the execution of an instruction.	Hardware error	A0030
29	A parity error occurs in LSI register in file address $00 to $0B.	Hardware error	A0030
30	Current flows even after resetting the error marker drive.	Hardware error	A0043 A6000
31	The window does not close within a prescribed time.	Operator or Hardware error	A0110
32	Reel hub lock signal is erroneously detected.	Hardware error	A0041
35	Front door open is detected during unloading. Check that the front door is firmly closed.	Operator or Hardware error	A0420
36	File column in signal is not set to OFF during unloading.	Hardware error	A3020
37	Machine column in signal is not set to OFF during unloading.	Hardware error	A3020
38	Tape present signal is not set to OFF after the tape has been completely rewound onto the file reel during unloading.	Hardware error	A3030
39	Failure of forced unload.		

Error code	Description	Cause of error	Refer to
40	Front door open is detected during unloading. Check that the front door is firmly closed.	Operator or Hardware error	A0420
41	Cartridge does not open. Check cartridge position.	Hardware error	A0120
42	The low tape is not detected within a prescribed number of rotations of the machine reel.	Hardware error	A0300
43	Auto hub is not locked.	Hardware error	A0320
44	Load/Rewind or Unload Key depressed while door open.		
45	The window is not closed. Press the reset and load button.	Hardware error	A0110
46	File column in signal is incorrectly detected.	Hardware error	A0310
47	Machine column in signal is incorrectly detected.	Hardware error	A0310
48	Tape present signal is detected after the tape has been rewound for a load retry.	Hardware error	A3030
49	The tape has not passed the BOT/EOT sensor. (Tape present signal is not detected.)	Hardware error	A0350
50	Reel loaded signal is erroneously detected.	Hardware error	A0360
51	Reel loaded signal is not detected.	Hardware error	A0360
52	The length from the starting tip of tape to the BOT marker is too short. (This length should be 4.3 to 5.5 m or 14 to 18 feet.)	Operator error	A0380
53	BOT marker cannot be detected within the prescribed distance.	Operator or Hardware error	A0400
54	Machine column in signal is not detected.	Hardware error	A0310

Error code	Description	Cause of error	Refer to
55	File column in signal is not detected.	Hardware error	A0310
56	Loop alarm is detected after machine reel column in signal.	Hardware error	A0430
57	Loop alarm is detected after file reel column in signal.	Hardware error	A0430
60	Loop alarm in file reel column is detected when the capstan speed down (HS CF) is on.	Hardware error	A0170 A2000
61	Loop alarm in file reel column is detected when the capstan speed down (HSCF) is off.	Hardware error	A0170 A2000
62	Loop alarm in machine reel column is detected when the capstan speed down (HSCM) is on.	Hardware error	A0170 A2000
63	Loop alarm in machine reel column is detected when the capstan speed down (HSCM) is off.	Hardware error	A0170 A2000
64	Reel hub lock is released.	Hardware error	A0320
65	Front Door open is detected after tape is loaded. Check that the front door is firmly closed.	Operator or Hardware error	A0420
66	Left tape-loop alarm detected in servo-on state (HSCF=1).		
68	Window open detected in tape running.		
69	Failure of auto-cleaner is tape running.		
70	Tach pulse is not detected when capstan motor is started.	Hardware error	A0550
71	The phase of capstan tach pulse A/B is incorrect.	Hardware error	A0550
72	Capstan continues to turn back and forth during position control. (Direction detecting signal OD remains set at '1'.)	Hardware error	A0500
73	Capstan does not turn back and forth during position control. (Direction detecting signal OD remains at '0'.)	Hardware error	A0500

Error code	Description	Cause of error	Refer to
74	The range of stop position of the capstan is too long (longer than ± 36 QTP = quarter tach pulse.)	Hardware error	A0450
75	The stop position of the capstan is not stable when servo lock is applied after the capstan stops.	Hardware error	A0450
80	Write voltage is turned on during the read status, or write voltage is not turned off within a prescribed time.	Hardware error	A0330
81	Write voltage is turned off during the write status, or write voltage is not turned on within a prescribed time.	Hardware error	A0330
82	Erase current is turned on during the read status, or erase current is not turned off within a prescribed time.	Hardware error	A0330
83	Erase current is turned off during the erase status, or the erase current is not turned on within a prescribed time.	Hardware error	A0330
84	Error in the +12 V supply.	Hardware error	A0330
85	Write voltage was not turned on within a prescribed distance during write operation in the streaming mode.	Hardware error	A0340
86	File protect was turned on during write erase operation. Turn protect switch off.	Operator or Hardware error	A5000
87	File protect was turned on during the DSE (Data Security Erase) operation. Turn protect switch off.	Operator or Hardware error	A5000
88	An error occurred in the level setting for the PE (phase encode) mode.	Hardware error	A0044
99	Error is in the tape. (This error is displayed after unloading is completed. However, the Unit Check light remains off.)	Tape or Hardware error	Replace the tape

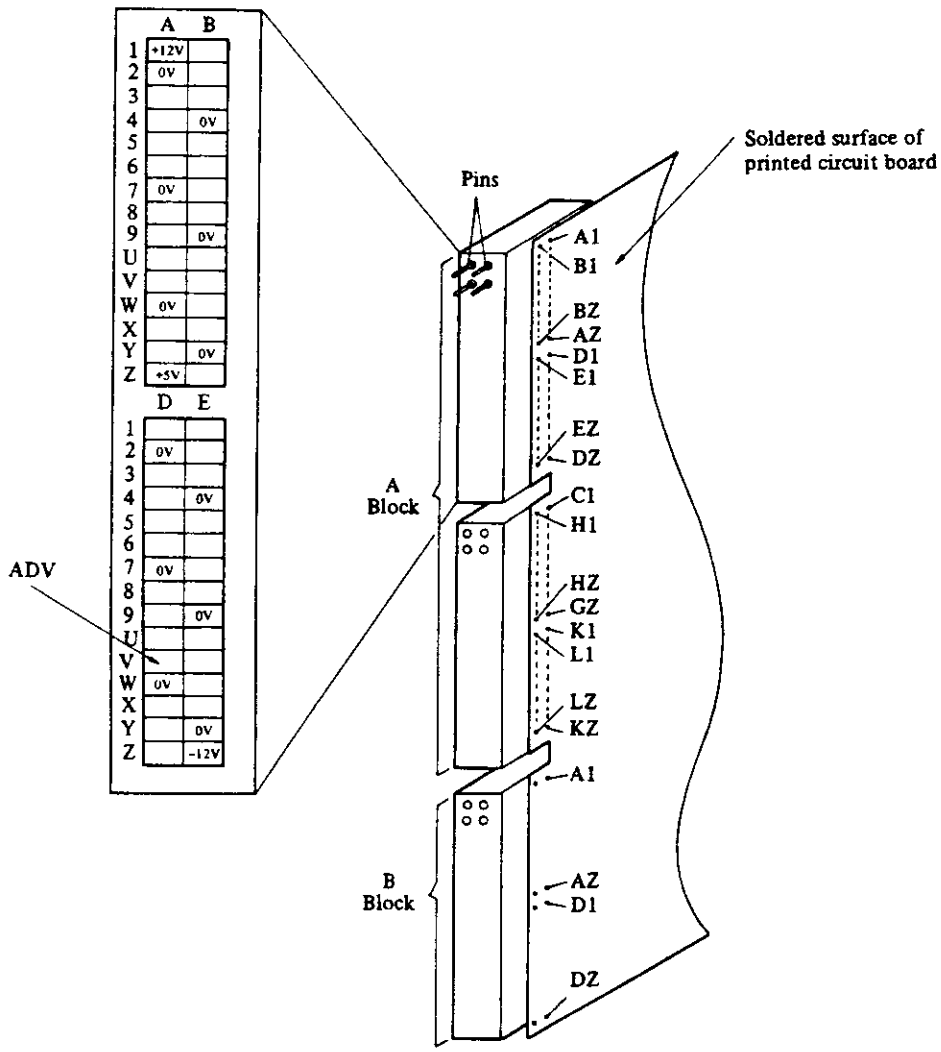
Error Codes Not Currently In Use

09, 26, 27, 33, 34, 58, 59, 67, 76, 77, 78, 79, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98

Use the MTU PCA location chart (see divider tab at the beginning of Part II) to locate MTU printed circuit assemblies (PCAs). When locating or replacing PCAs, observe these procedures:

(1) Turn off the MTU power supply.
(2) Use extraction tool P/N C960-0300-T001.
(3) Mark the connector before removing to ensure correct replacement.
(4) Avoid bending connector pins when installing a PCA.

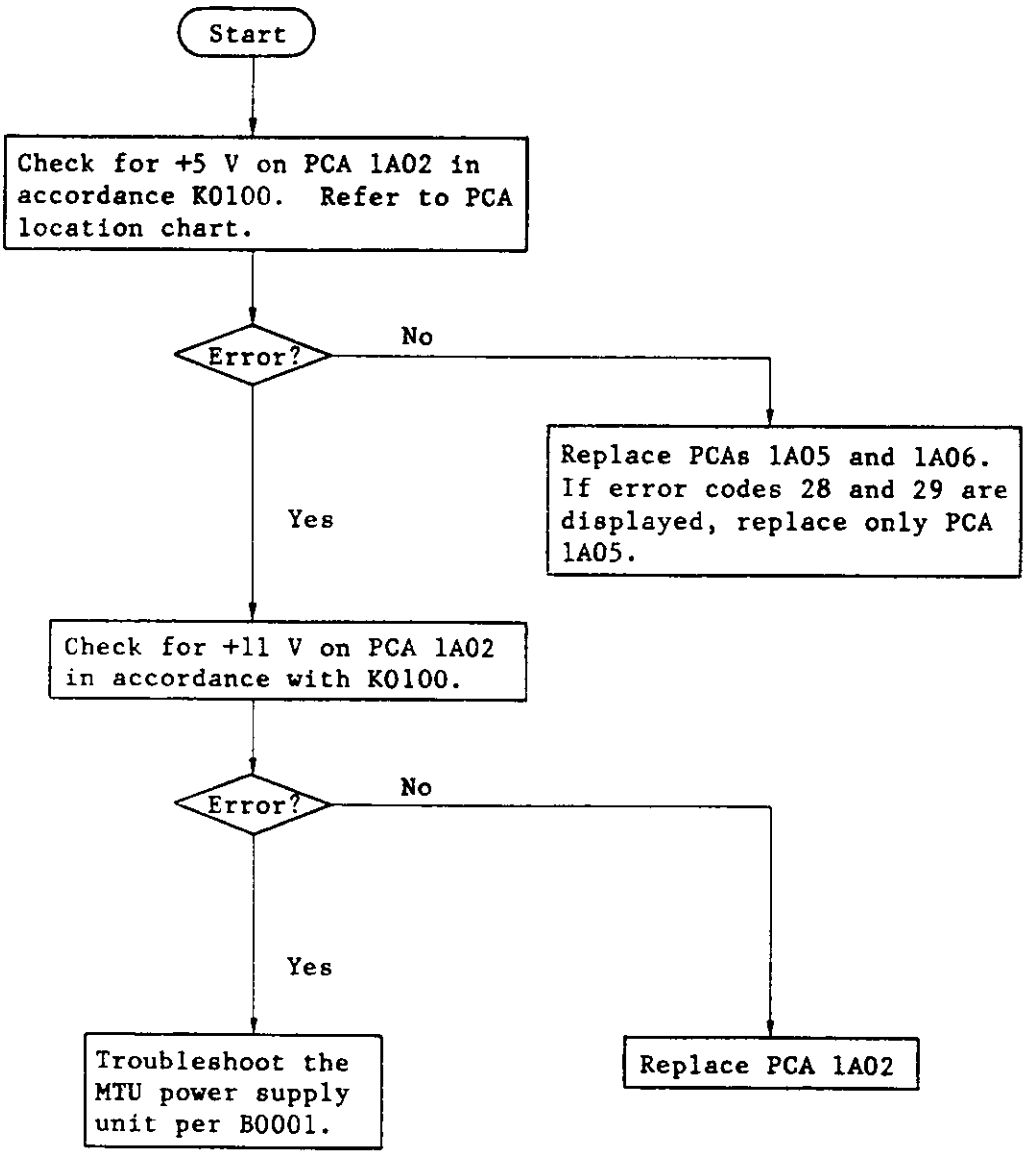
Some corrective actions require monitoring a signal at the MTU motherboard. Figure A.1 shows the system by which the pins are identified. The location of pin ADV is given as an example.



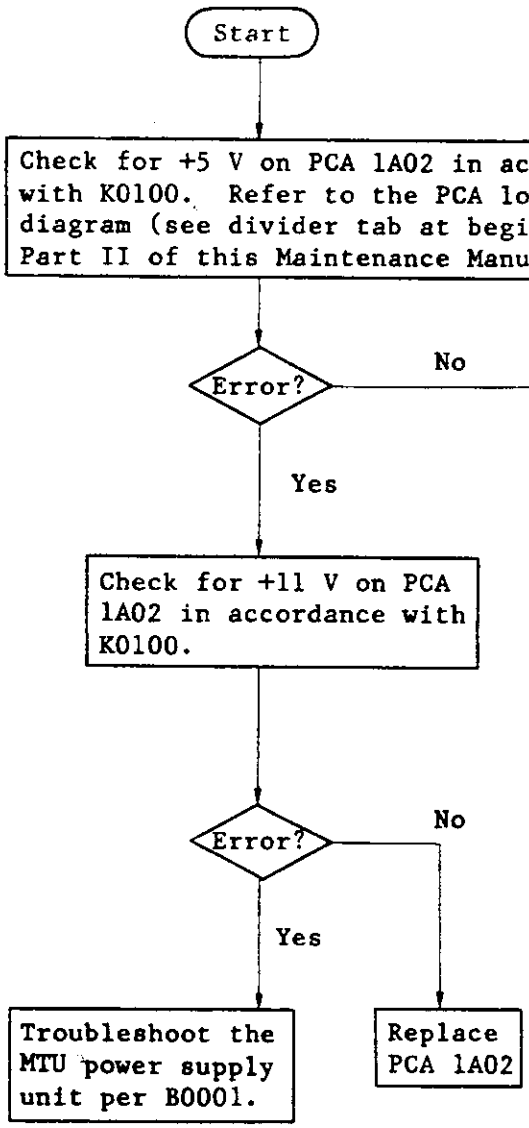
Note: ADV location is shown as an example.

Figure A.1 Signal-monitoring points (pins) on MTU motherboard

A0030	Error Codes 00 through 11, 16, 28, and 29



A0031	Error Codes 12, 13, 15, and 17 through 25



If error code	Refer to
12	A0040
13	A0041
15 or 17	Replace PCA 1A05 or 1A06
18	A0042
19	A0043
20	A0044
21	A0045
22 - 25	A0046

A0031	Error Code 12, 13, 15 and 17 through 25

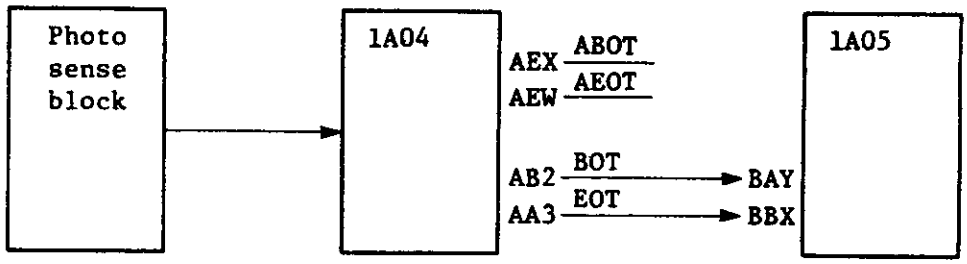
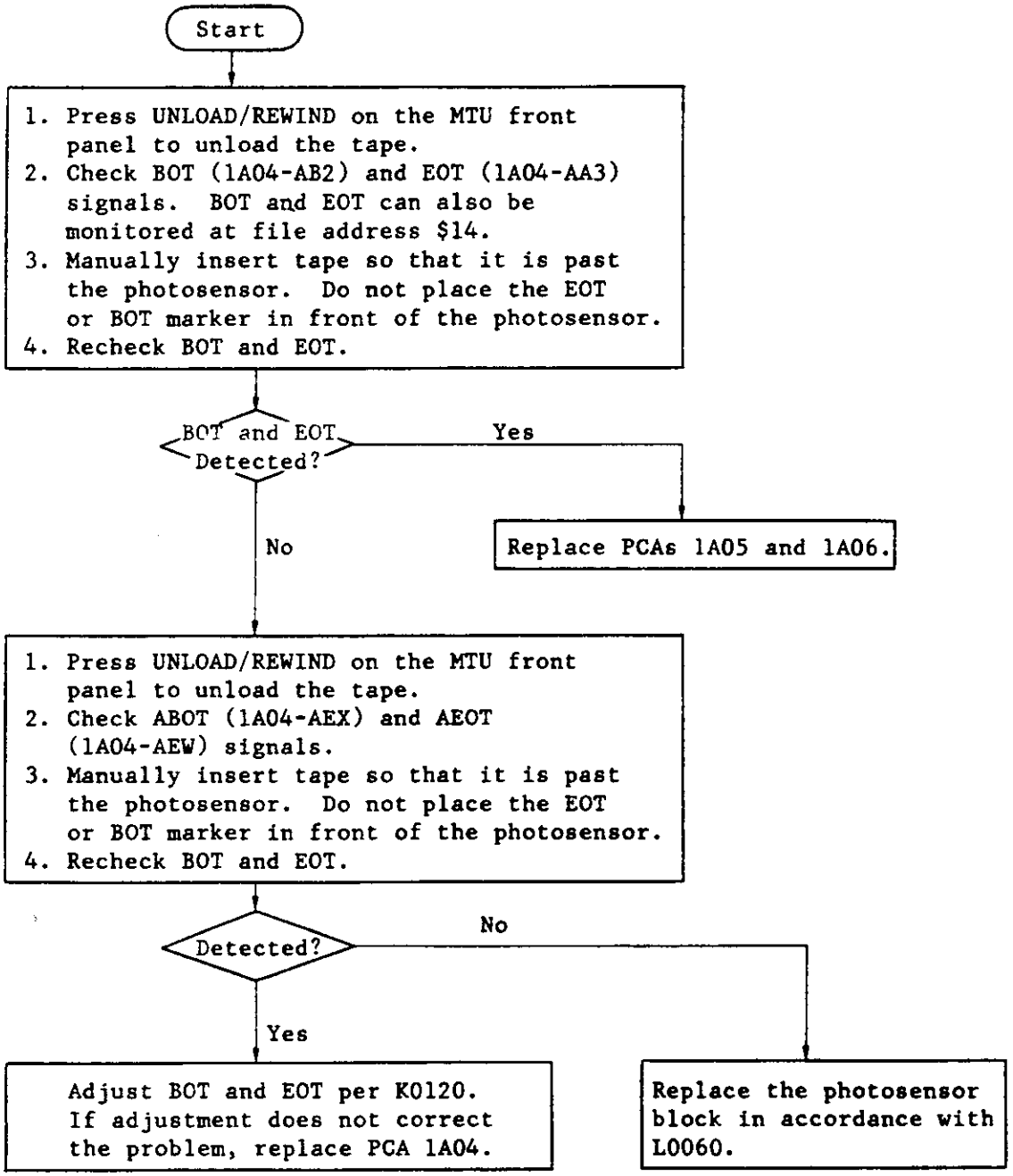


Figure A.2 Troubleshooting Error Code 12

A0040	Error Code 12 (continued)

Inconsistency amont tape present, BOT, and EDT signals.



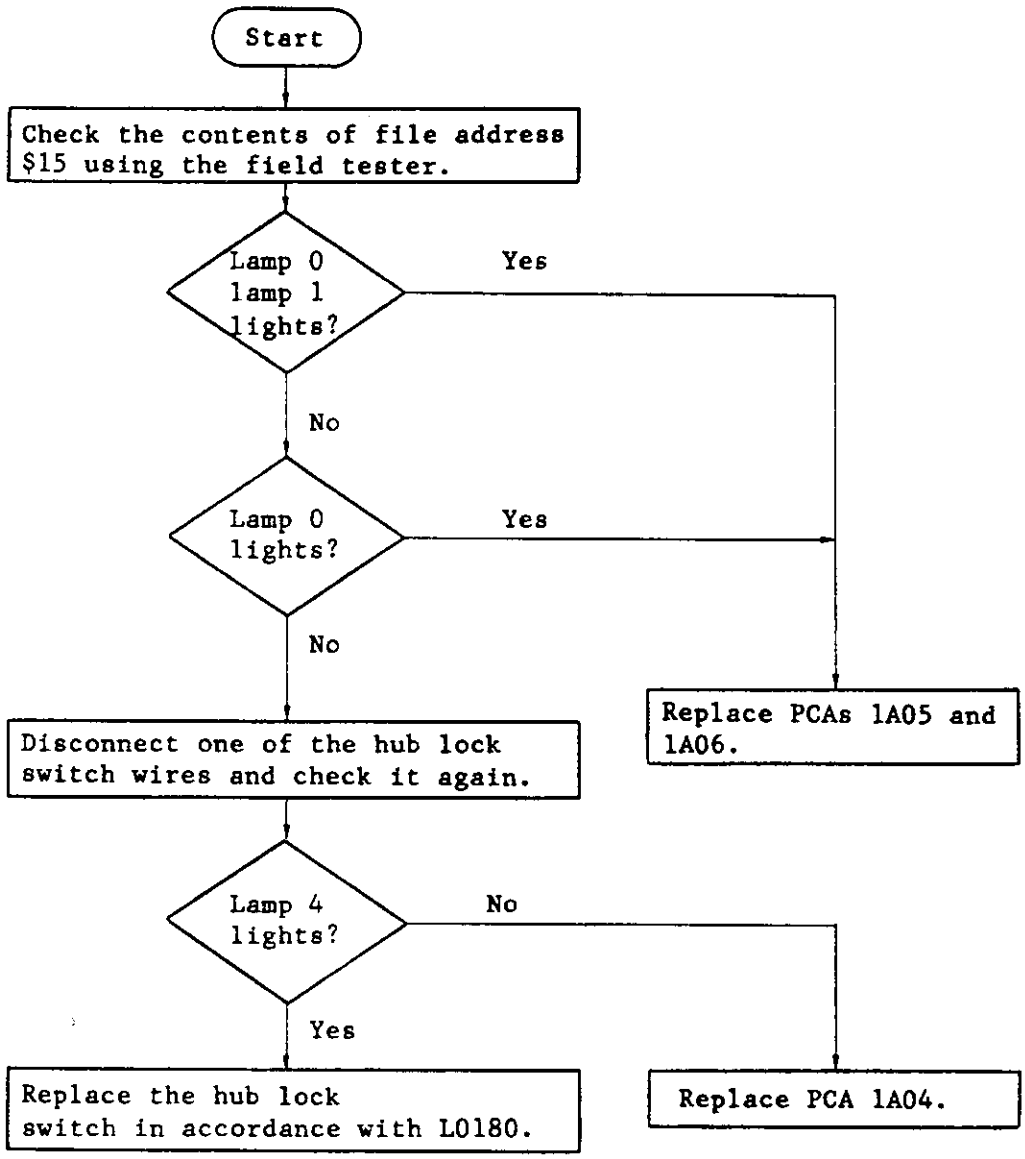
Notes:

(1) File address $14
Bit 0 TP: Tape present
Bit 4 BOT: Beginning of tape
Bit 5 EOT: End of tape.

(2) A detected signal corresponds to a logical high (nominal 5 V or a "1").

A0041	Error Codes 13 (continued) and 32

ROMPE (ROM parity error) signal, RGPE (register parity error) signal, or HUBLK (hub lock) signal is set.



Notes:

(1) File address $15:
Bit 0 ROMPE: ROM parity error
Bit 1 RGPE: Register parity error
Bit 4 HUBLK: Hub lock.

(2) If necessary, refer to Part I of this Maintenance Manual for instructions on how to display a register file address using the field tester.

(3) Refer to Section L for subassembly removal instructions.

(4) Refer to PCA location chart (see divider tap) when replacing PCAs.

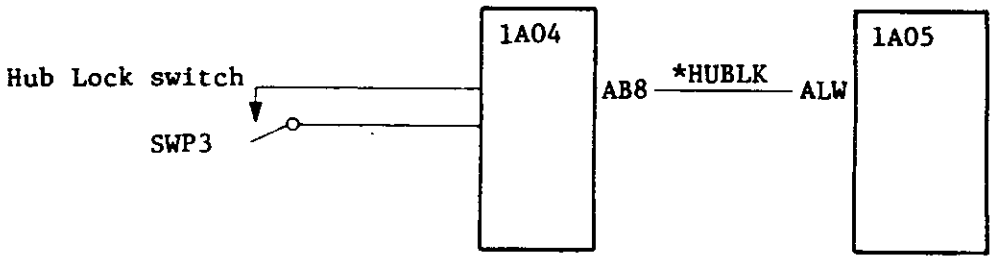
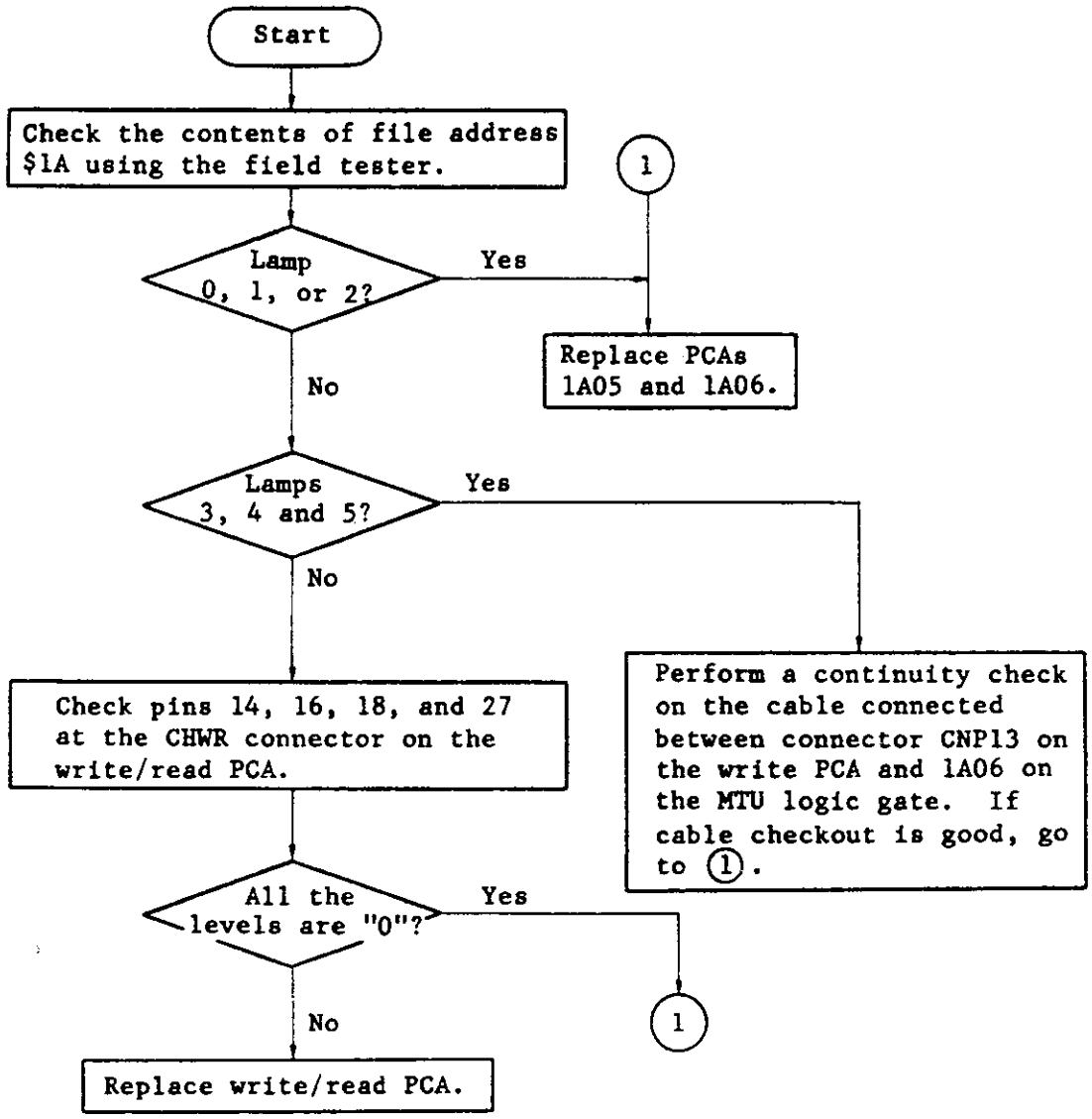


Figure A.3 Troubleshooting Error Codes 13 and 32

A0042	Error Code 18 (continued)

Either RTLAL (right tape loop alarm) LTLAL (left tape loop alarm), HUBAL (hub lock alarm) ECER (erase circuit error), WCER (write circuit error), or WRIST (write/read PCA installed) is incorrectly set.



Notes:

(1) File address $1A:
Bit 0 RTLAL: Right tape loop alarm
Bit 1 LTLAL: Left tape loop alarm
Bit 2 HUBAL: Hub lock alarm
Bit 3 ECER: Erase circuit error
Bit 4 WCER: Write/read installed.

(2) If necessary, refer to Part I of this manual for instructions on how to display a register file address using the field tester.

(3) Refer to Section L for subassembly removal and replacement instructions.

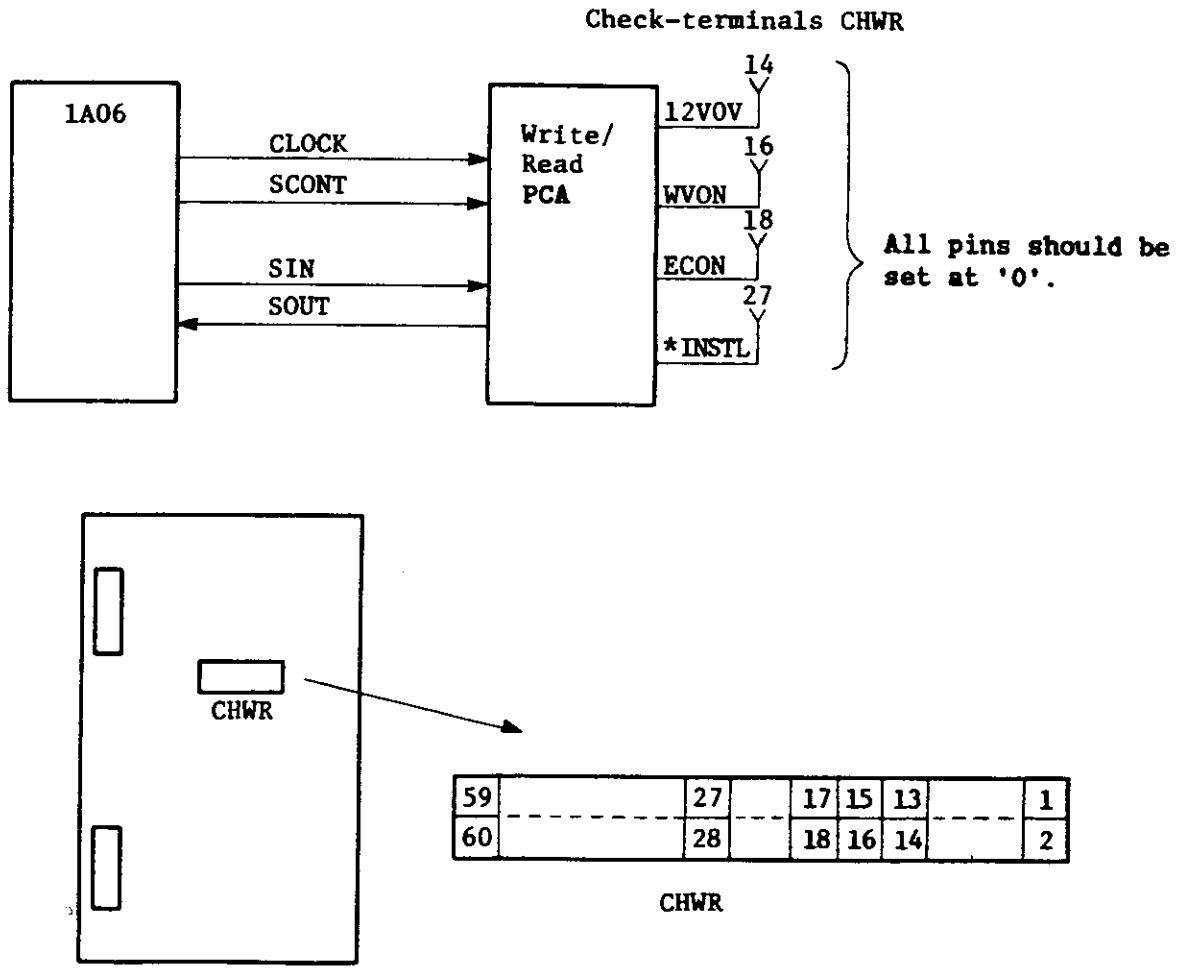
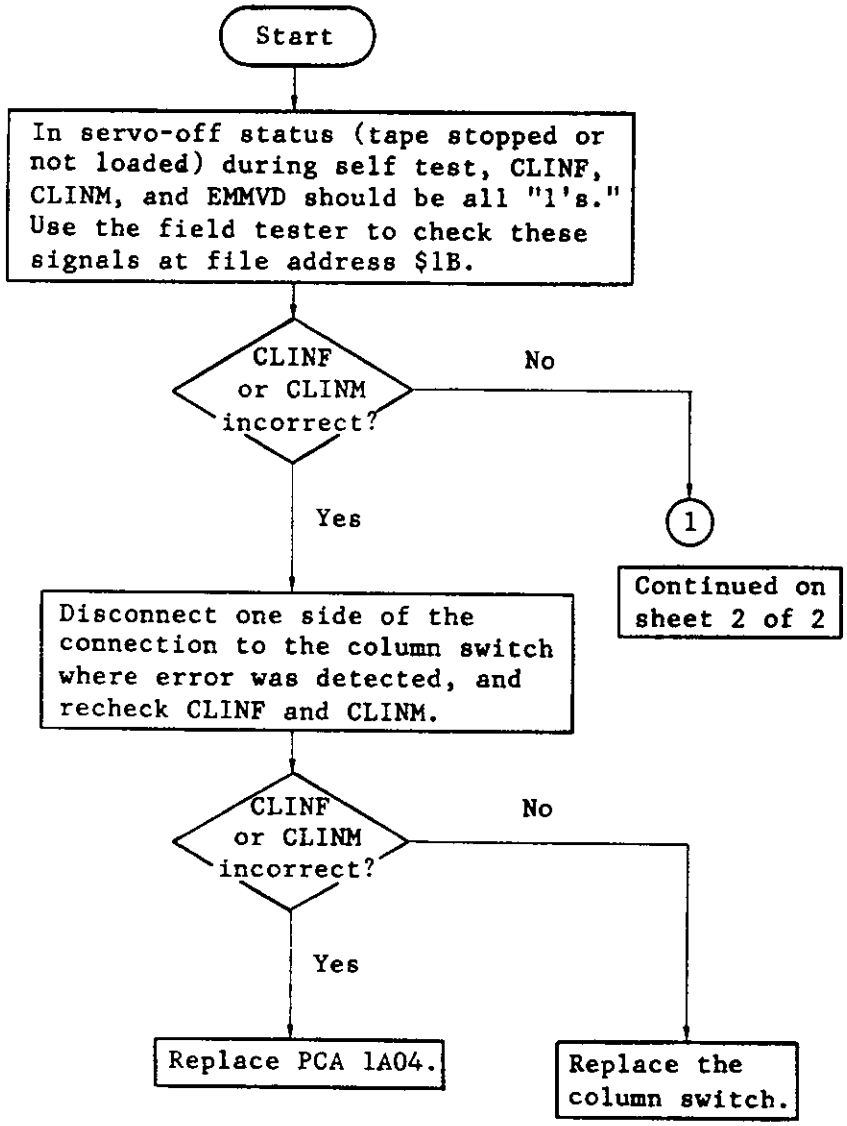


Figure A.4 Write/read PCA

A0043	Error Codes 19 (continued) and 30

Column in file (CLINF), column in machine (CLINM) or error marker moved (EMMVD) signal is set incorrectly.



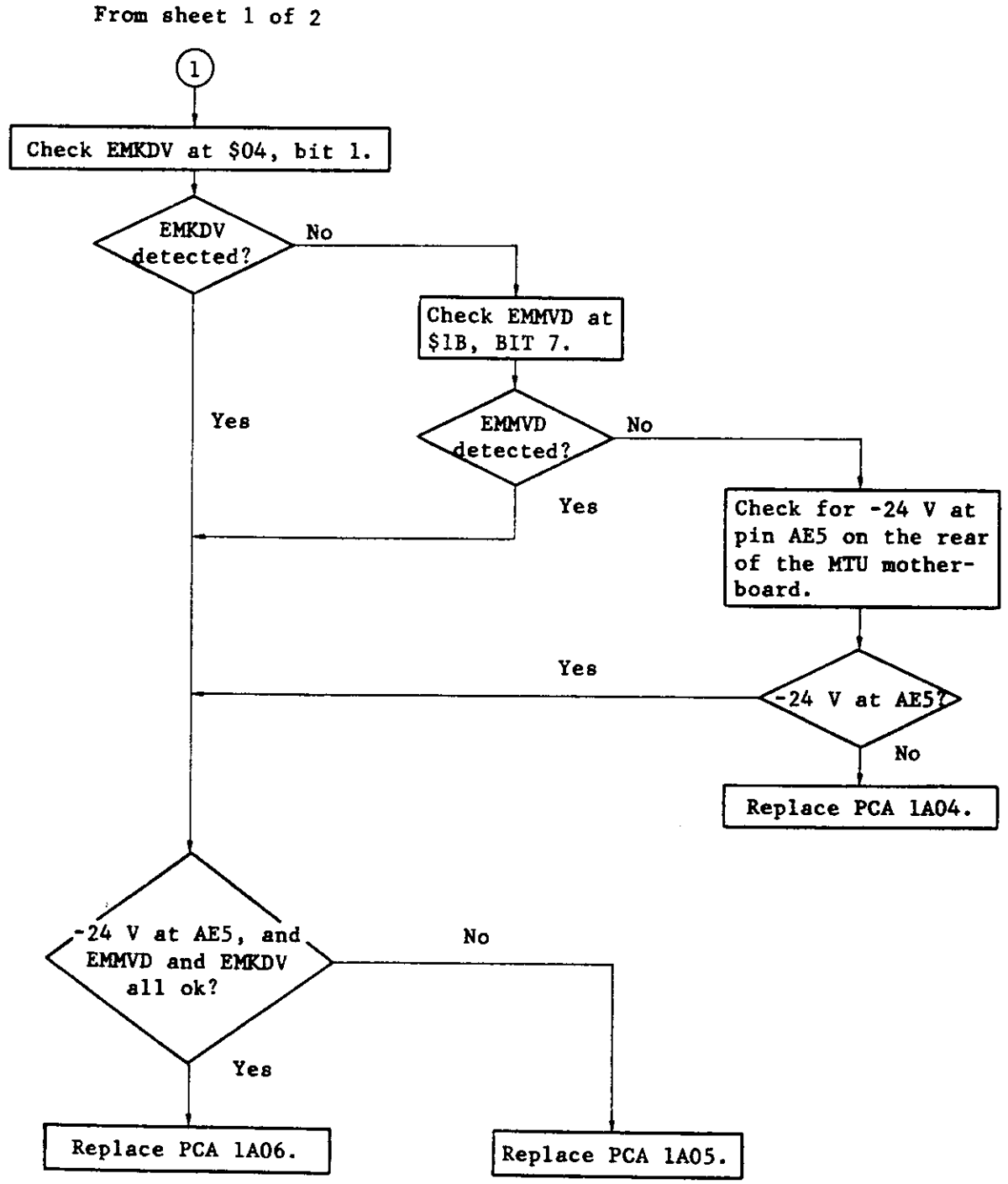
Notes:

(1) File address $1B:
Bit 3 CLINF: Column in file. (Tape in the file column has been detected.)
Bit 4 CLINM: Column in machine. (Tape in machine column has been detected.)
Bit 7 EMMVD: Error marker moved.

(2) If necessary, refer to Part I of this Maintenance Manual for instructions on how to display a register file address using the field tester.

(3) Refer to Section L for subassembly removal and replacement instructions.

A0043	Error Code 19 (continued) and 30



Note:

(1) For pin designations such as AE5 on the MTU motherboard, refer to A0020, Figure A.1.

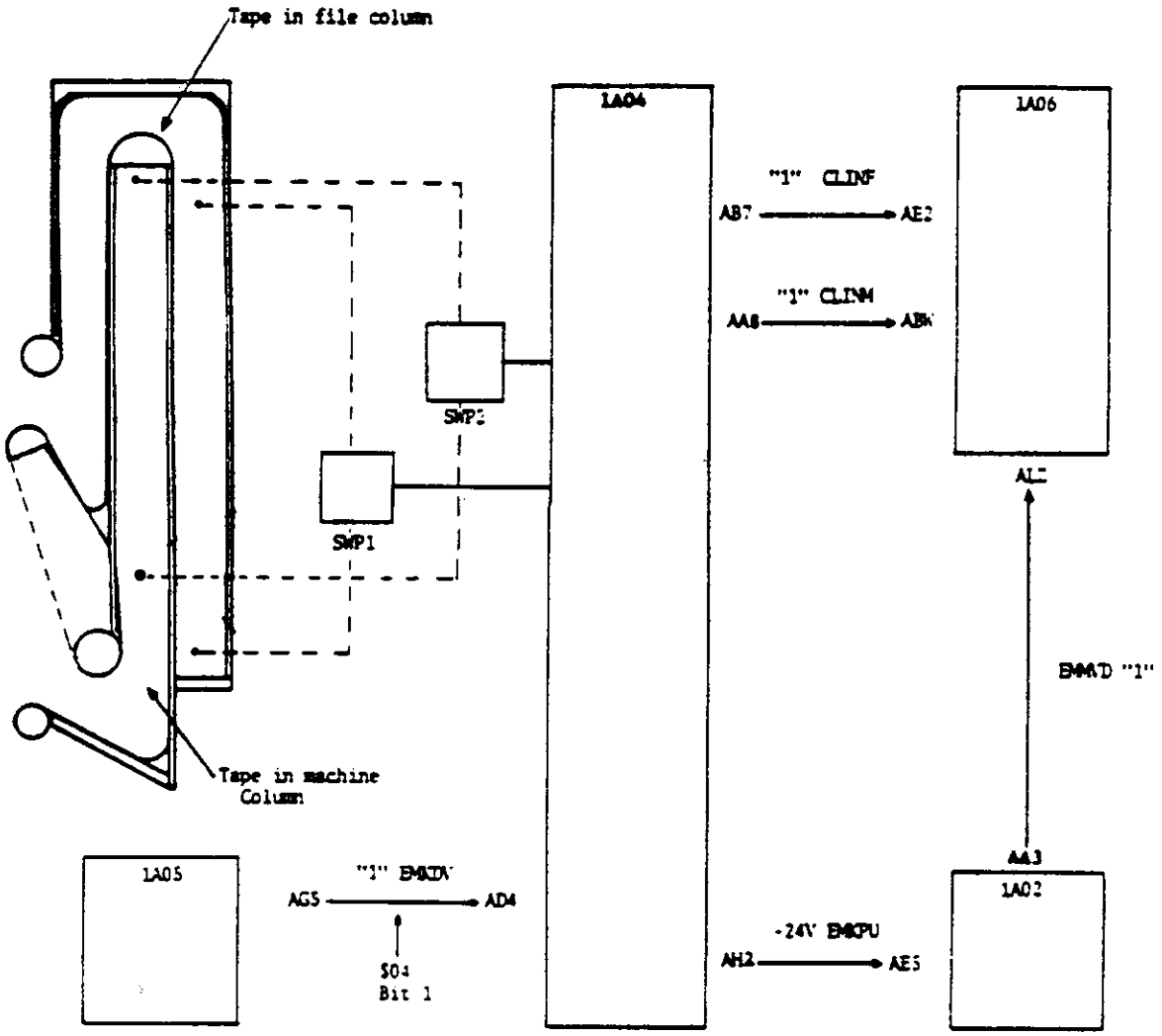
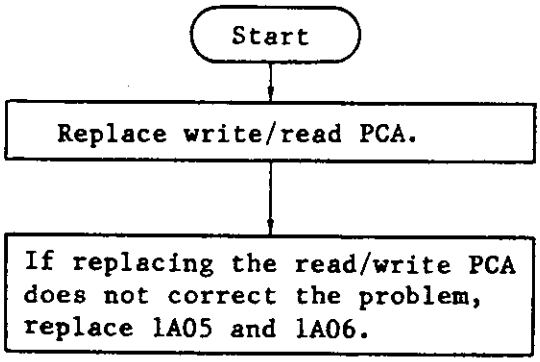


Figure A.5 Troubleshooting Error Codes 19 and 30

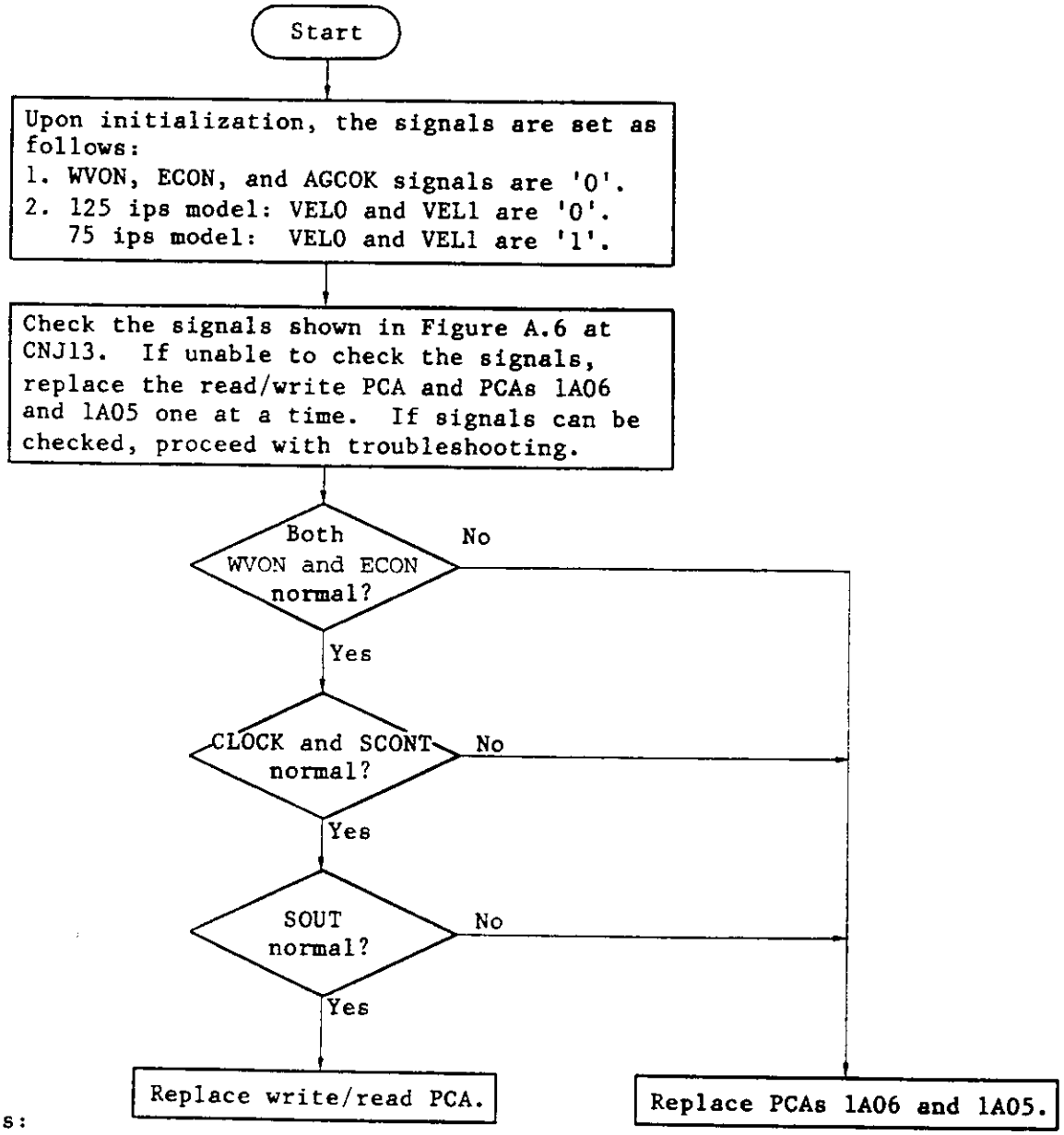
A0044	Error Codes 20 (continued) and 88

Faulty phase encode setting.



A0045	Error Code 21

Write voltage ON (WVON), erase current ON (ECON), SAGC OK (AGCOK), or velocity mode 0/1 (VEL0/1) signal is wrong.



Notes:

(1) File address $1D:
Bit 1 WVON : Write voltage ON
Bit 2 ECON : Erase current ON
Bit 5 AGCOK: SAGC OK
Bit 6 VEL0 : Velocity model 0
Bit 7 VEL1 : Velocity model 1.

(2) If necessary, refer to Part I of this Maintenance Manual for instructions on how to display a register file address using the field tester.

A0045	Error Code 21

File address $1D

Bit 1 WVON : Write Voltage ON
2 ECON : Erase Current ON
5 AGCOK: SAGC OK
6 VEL0 : Velocity Mode 0
7 VEL1 : Velocity Mode 1

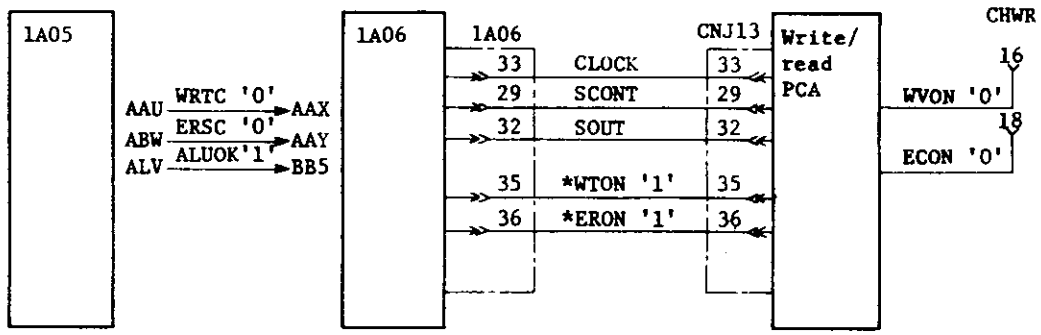


Fig. 1

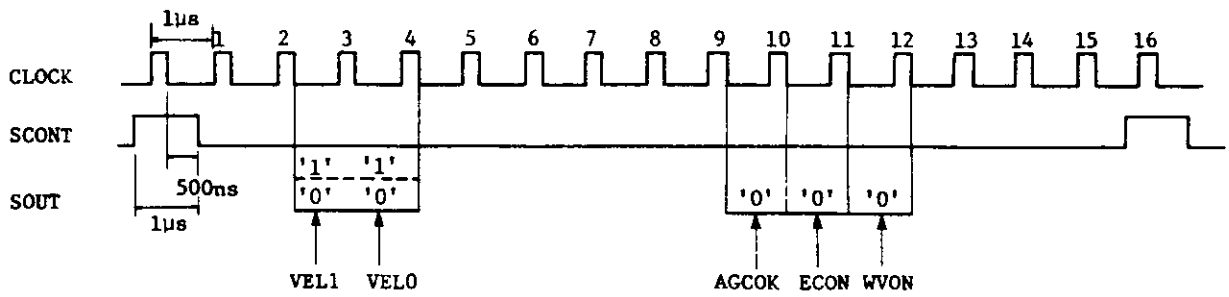
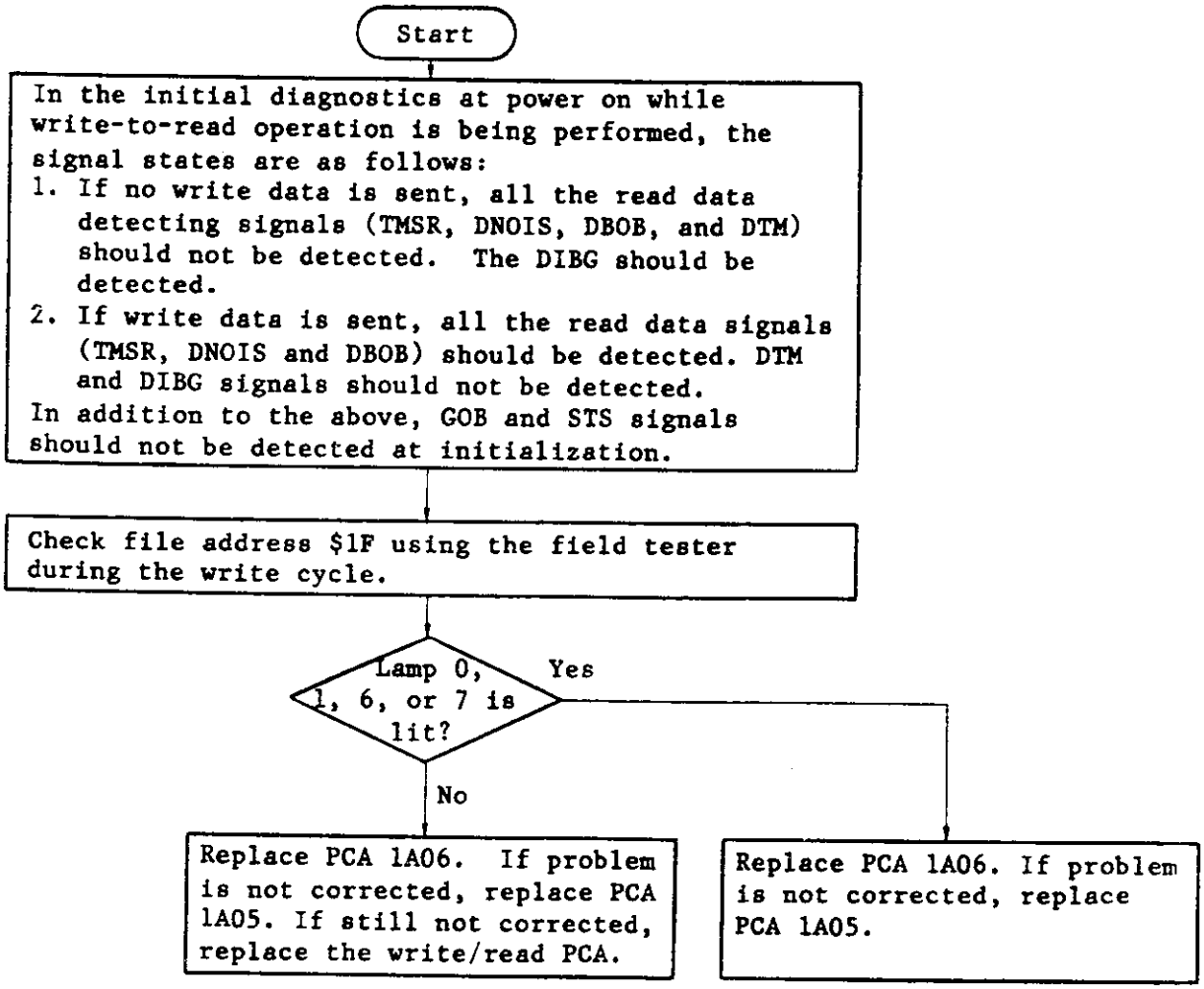


Figure A.6 Troubleshooting Error Code 21

A0046	Error Codes 22 through 25

Abnormality on file address $1E and $1F.



Notes:

(1) File address $1E:

	Read	Write
Bit 0 TMSR0: Time sensor 0	0	1
Bit 1 TMSR1: Time sensor 1	0	1
Bit 2 TMSR2: Time sensor 2	0	1
Bit 3 TMSR3: Time sensor 3	0	1
Bit 4 TMSR4: Time sensor 4	0	1
Bit 5 TMSR5: Time sensor 5	0	1
Bit 6 TMSR6: Time sensor 6	0	1
Bit 7 TMSR7: Time sensor 7	0	1

(2) File address $1F:

	Read	Write
Bit 0 GOB : Go tag	0	0
Bit 1 STS : Status flag	0	0
Bit 2 TMSR8: Time sensor 8	1	0
Bit 3 DNOIS: Detected noise	1	0
Bit 4 DBOB : Detected beginning of block	1	0
Bit 5 DIBG : Detected inter block gap	0	1
Bit 6 DTM : Detected tape mark	0	0
Bit 7 0 : Logical '0'.	0	0

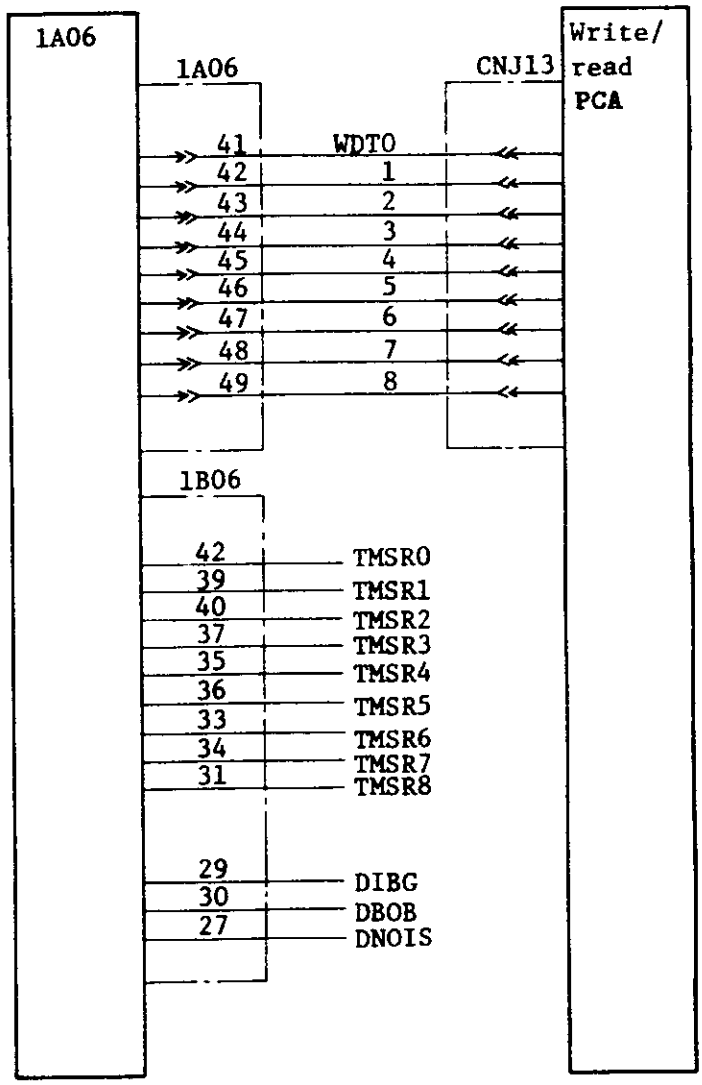
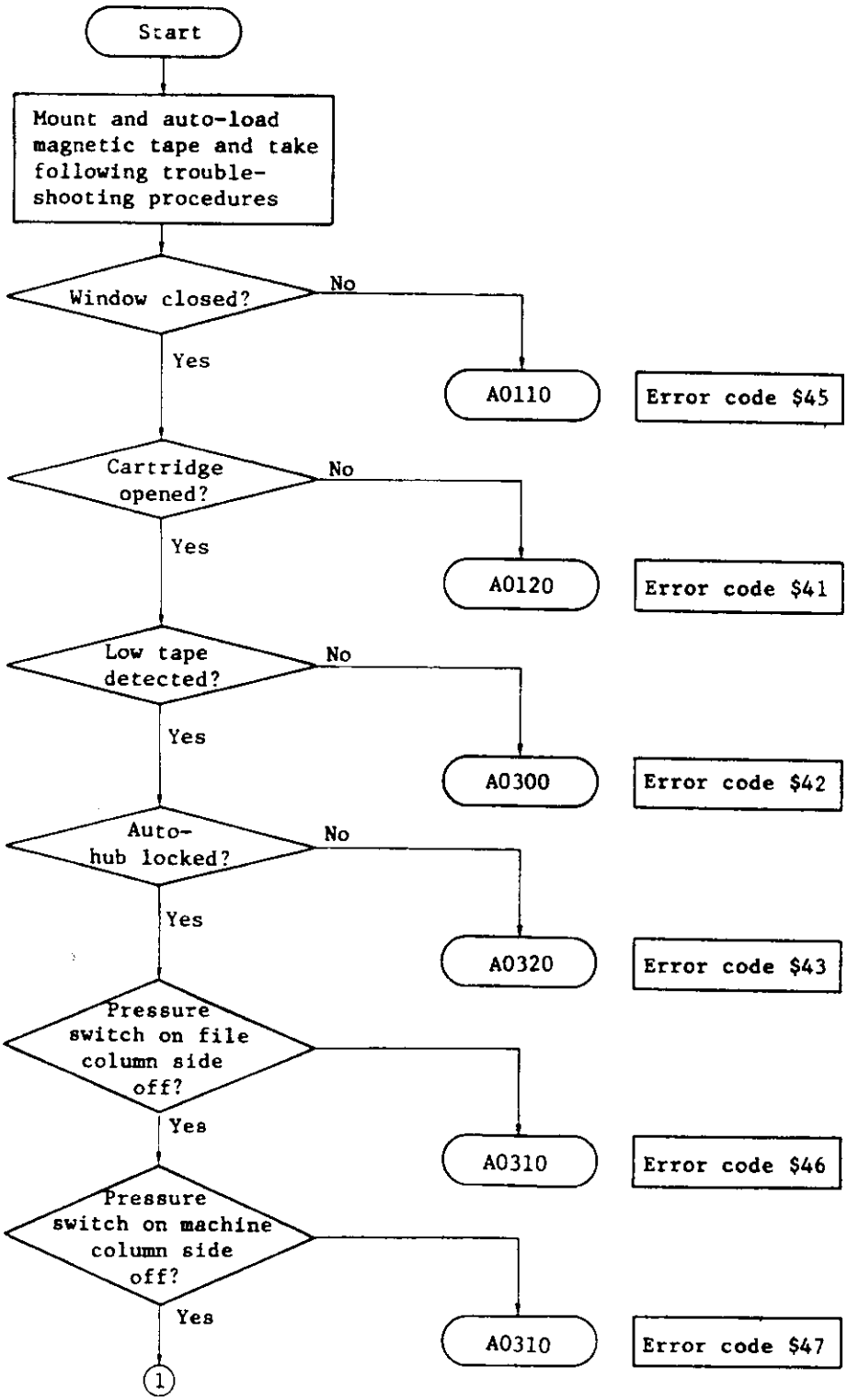


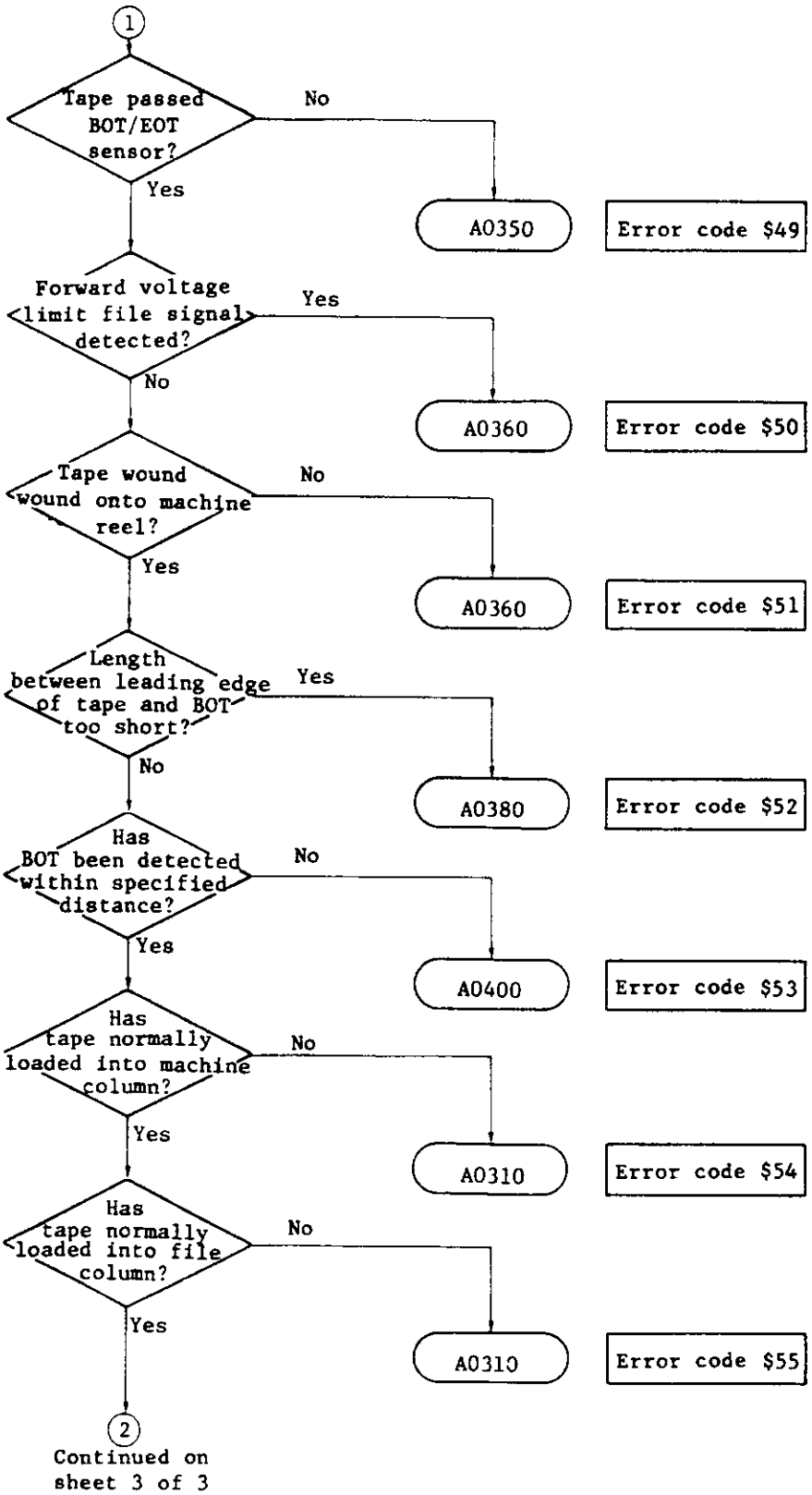
Figure A.7 Troubleshooting Error Codes 22 through 25

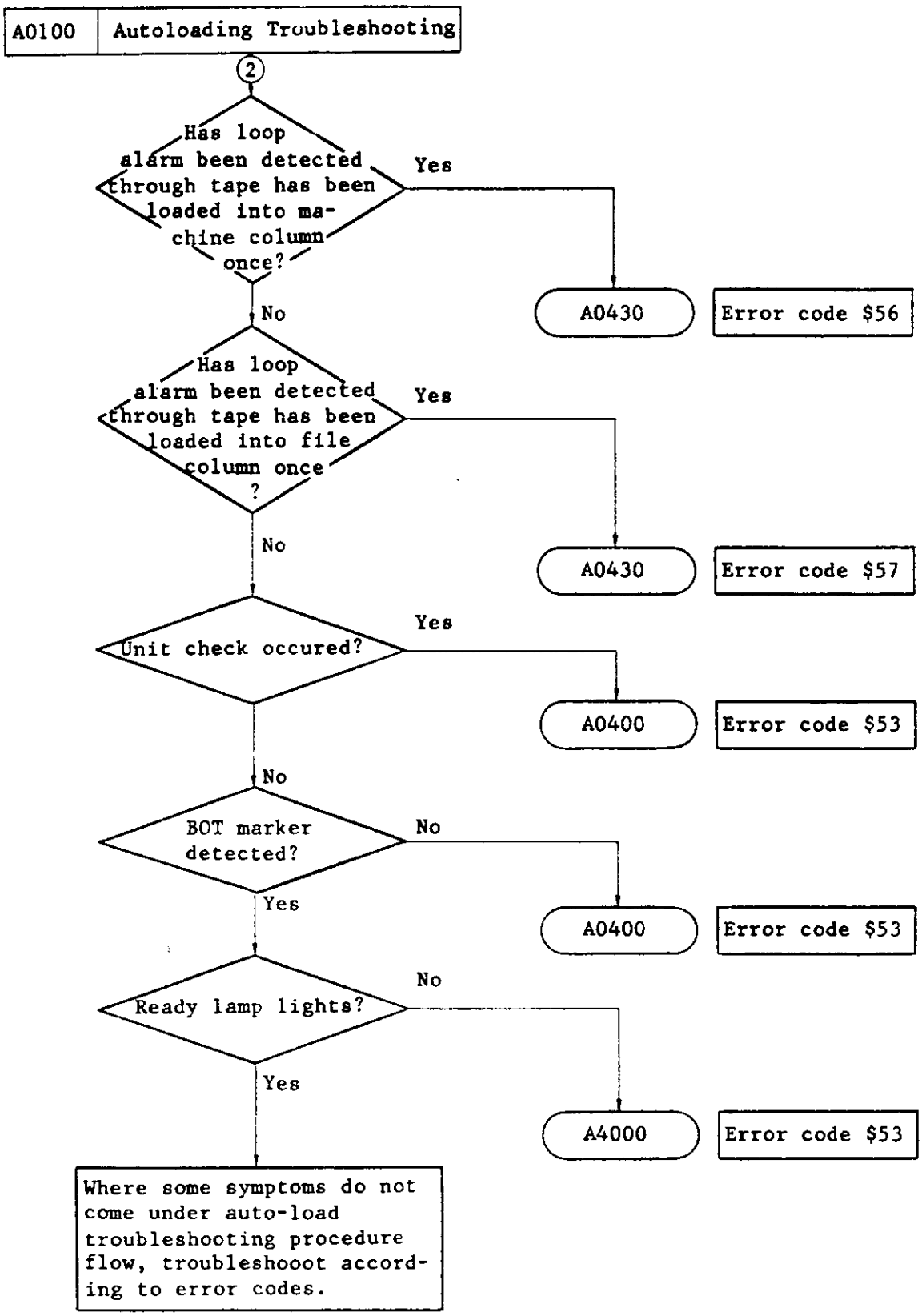
A0100	Autoloading Troubleshooting



Continued on sheet 2 of 3

A0100	Autoloading Troubleshooting

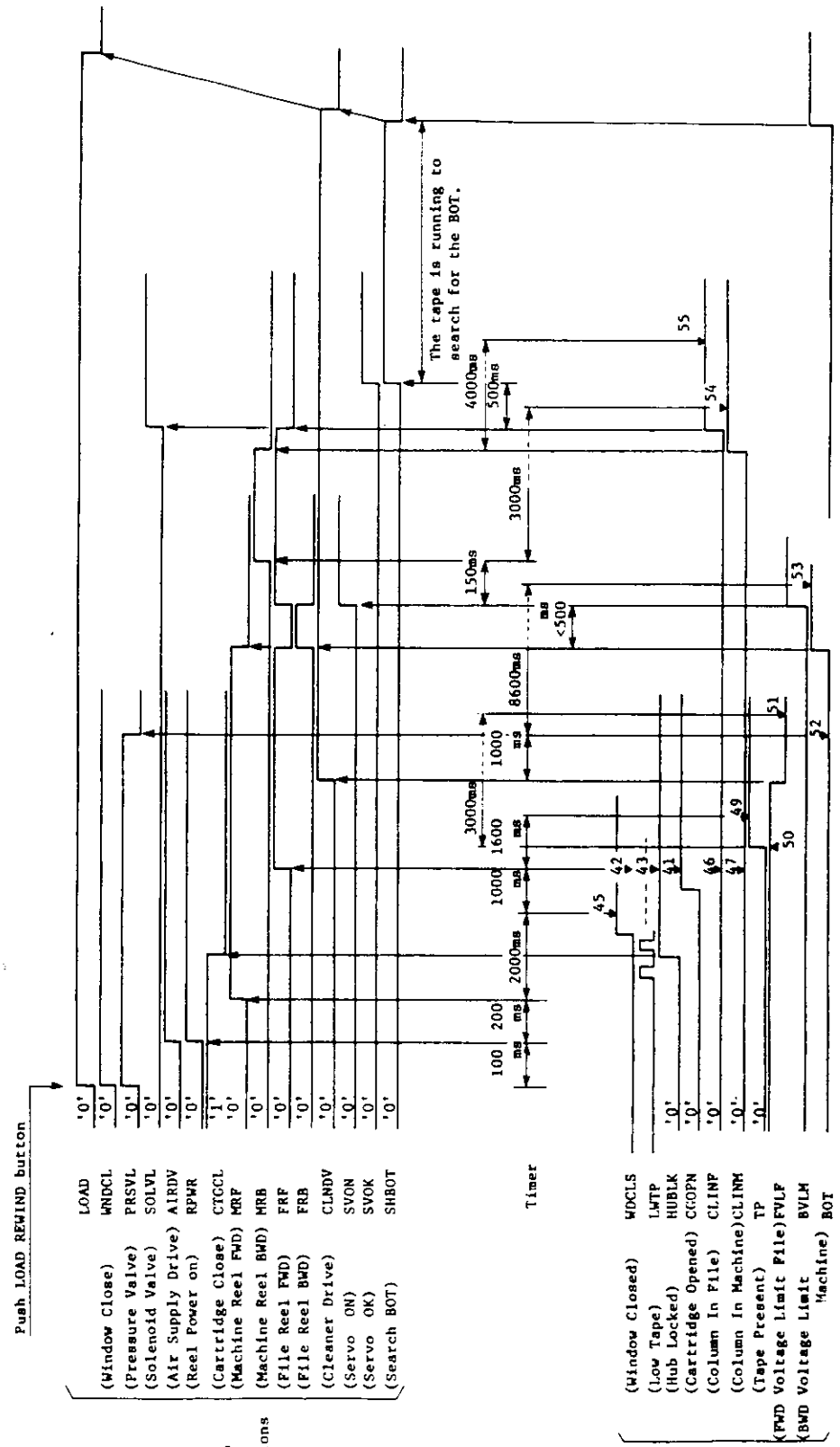




Notes:

(1) Unit check lamp flashes if the error occured during a load sequence.
(2) Push the Reset button to reset error.

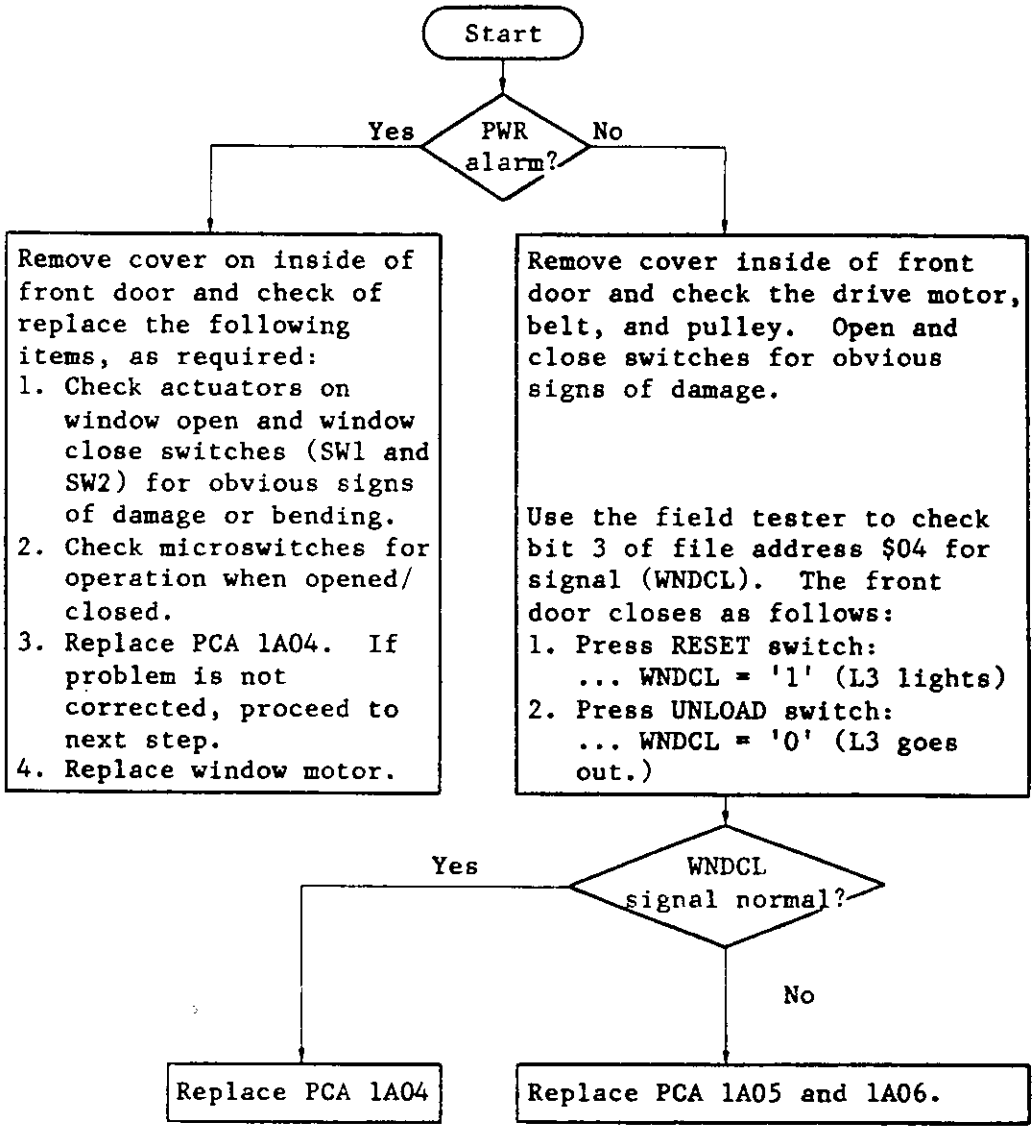
A0101	Auto Loading Timing Chart



Note: The marks '▼' indicate the timings when the program checks the logical level of each sensor during auto loading. The hexadecimal number in upper of the mark '▼' means Error code which is set to ER register.

A0110	Error Codes 31 and 45

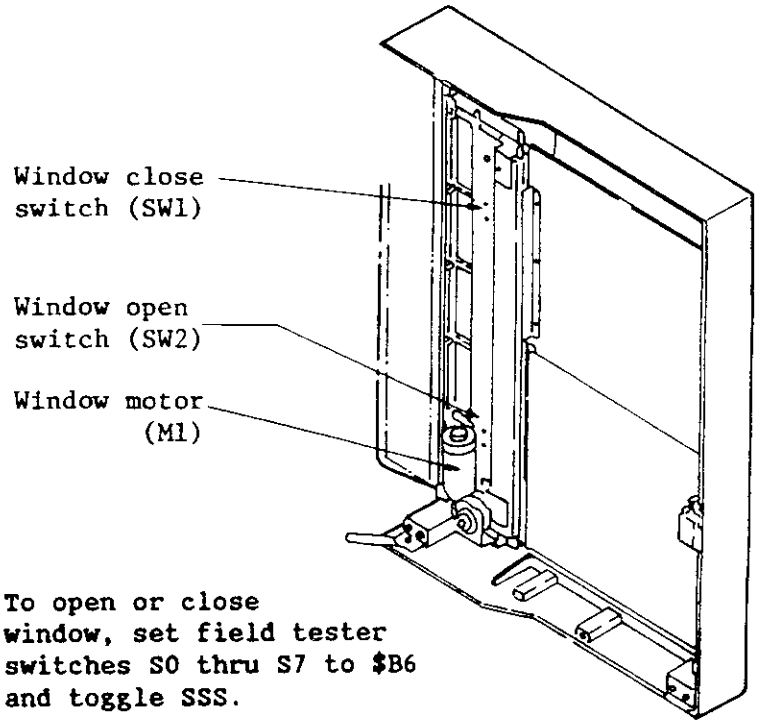
Window open/close failure.



Notes:

(1) Window open/close failure is due to drive system, microprograms, or mechanism.

(2) Use the field tester to issue command $B6 to open and close the window.



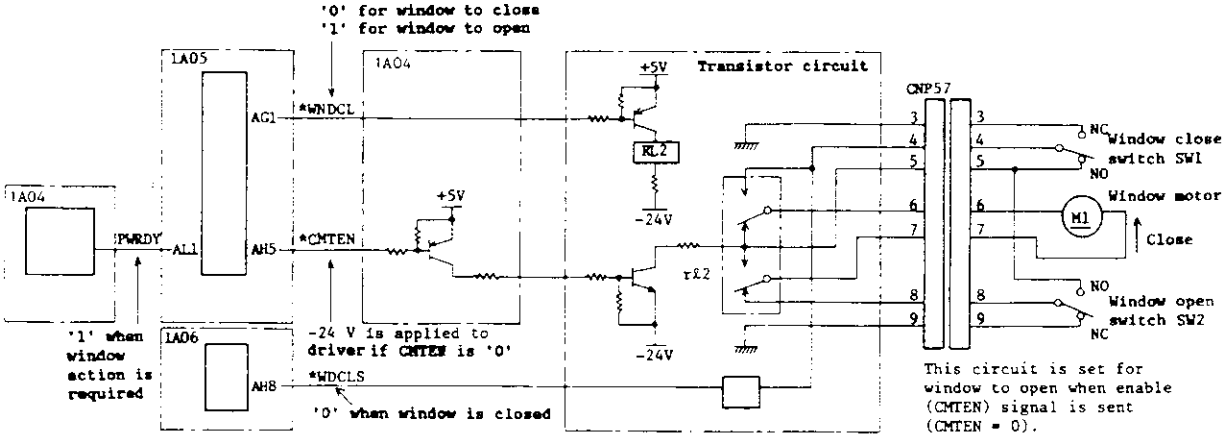
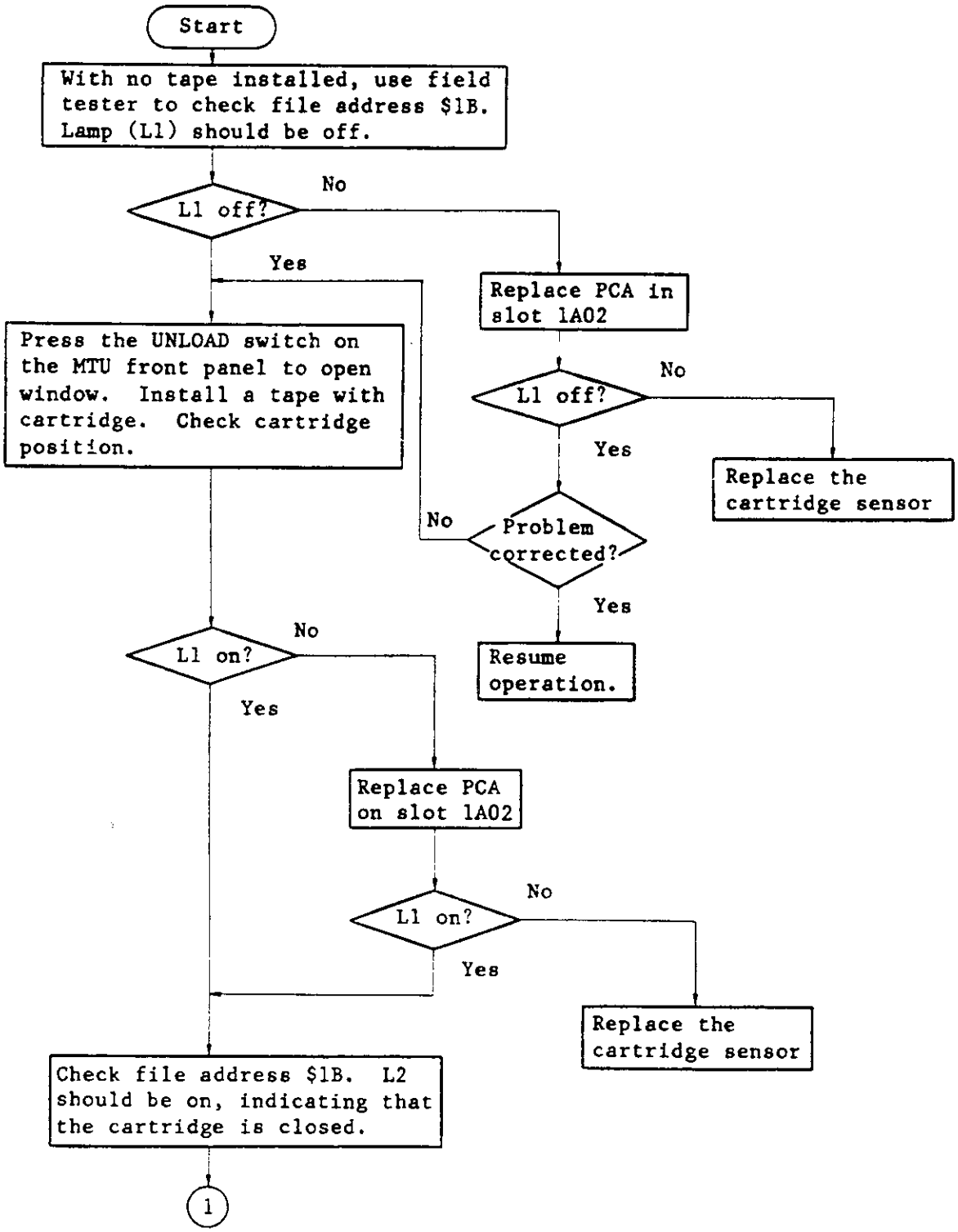


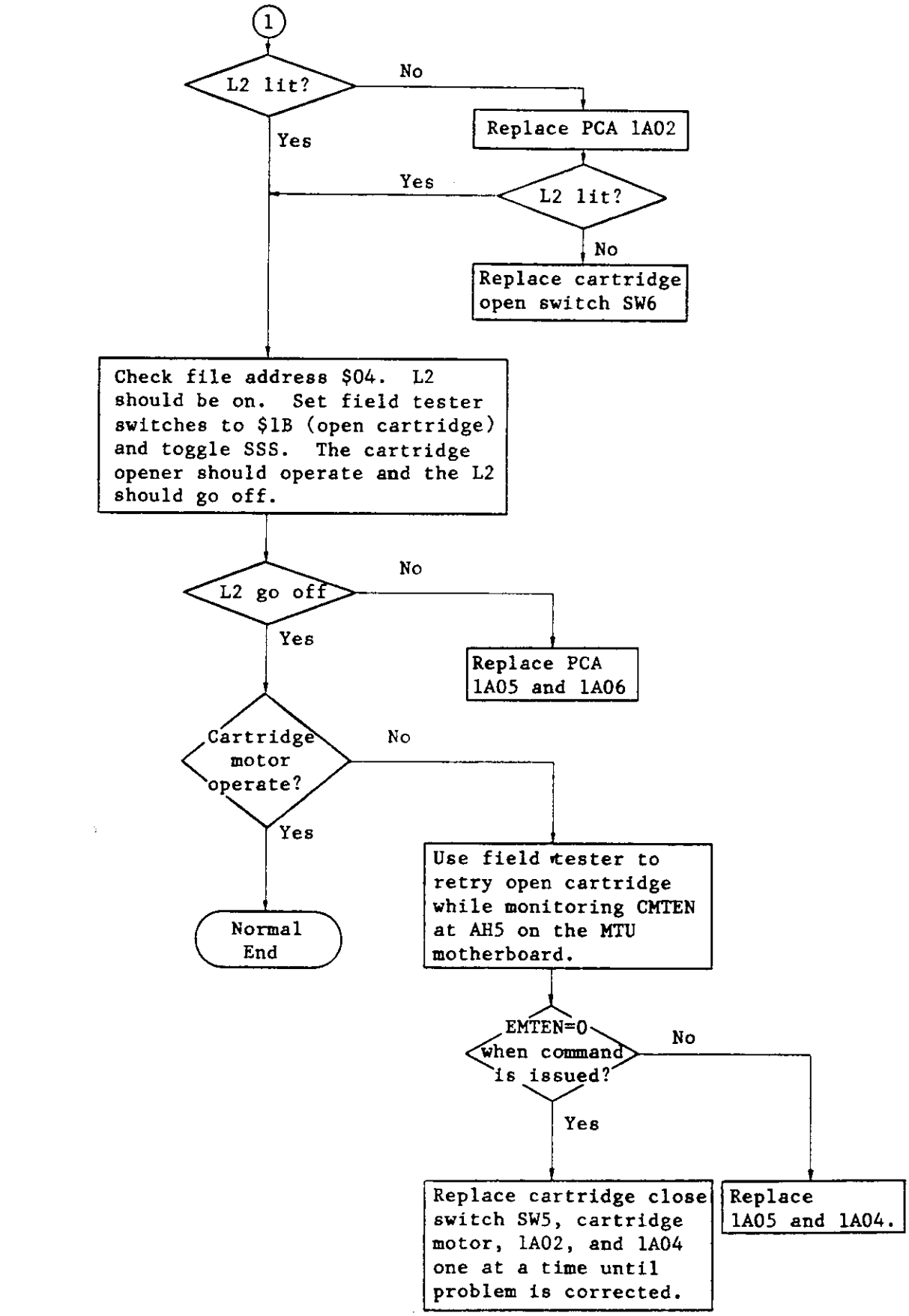
Figure A.8 Troubleshooting Error Code 31

A0120	Error Code 41

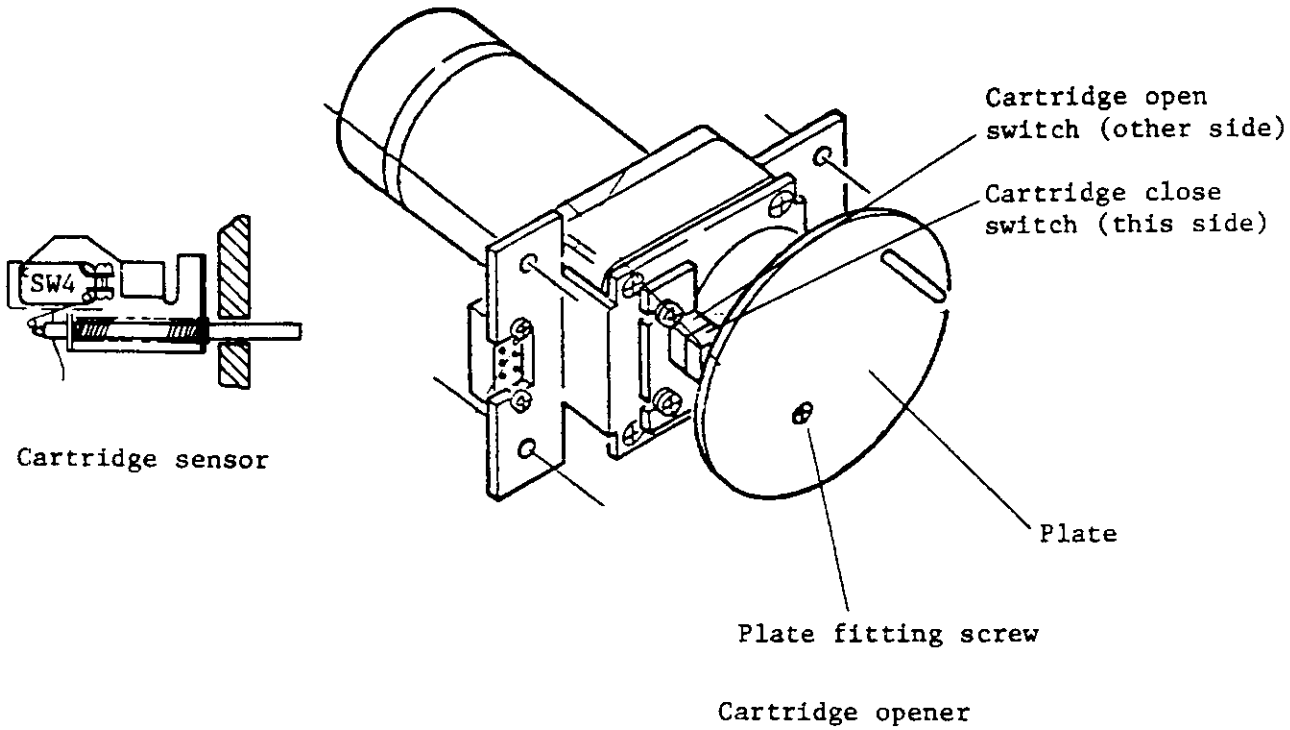
Cartridge open/close problem.



A0120	Error Code 41



A0120	Error Code 41



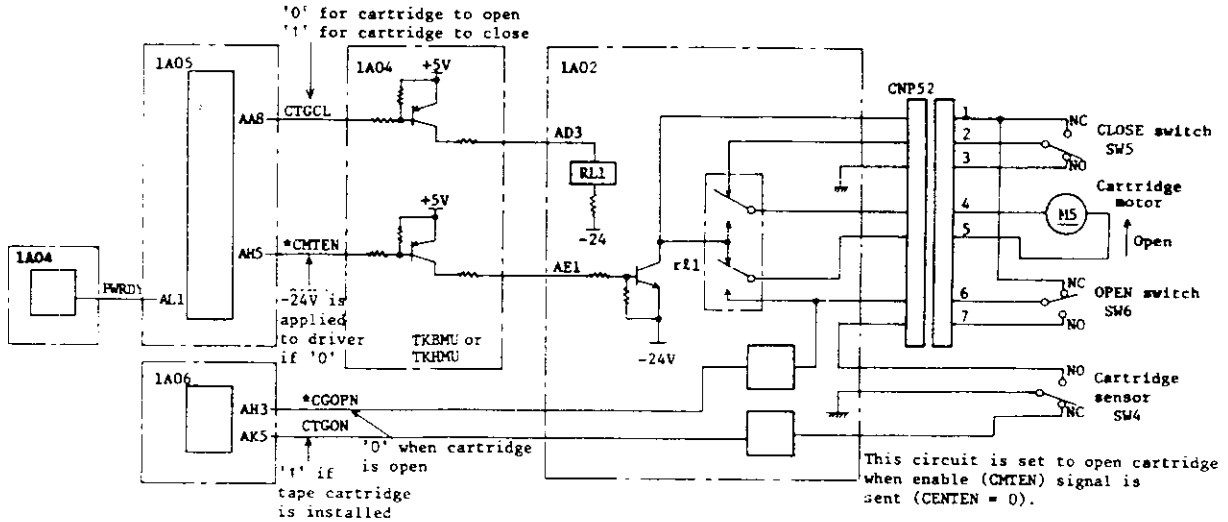
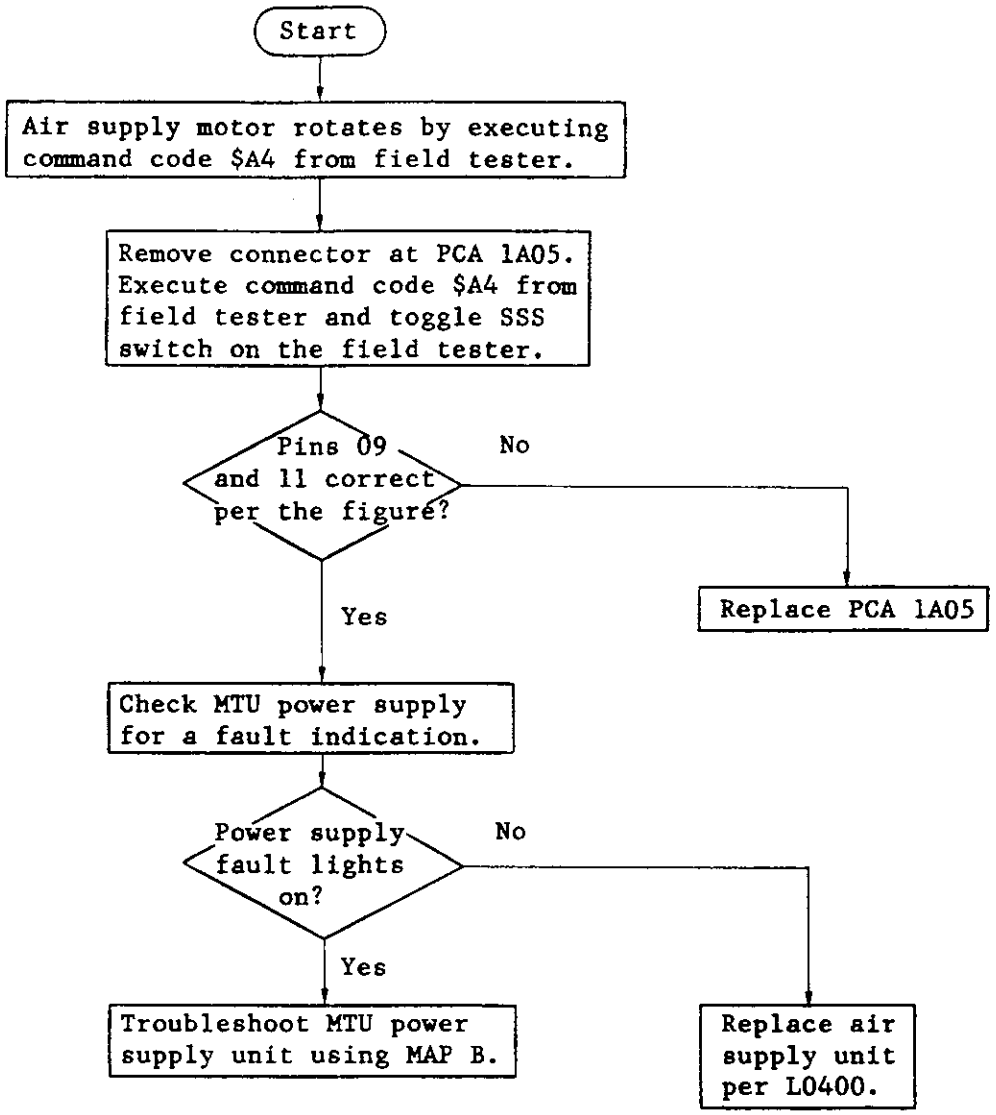
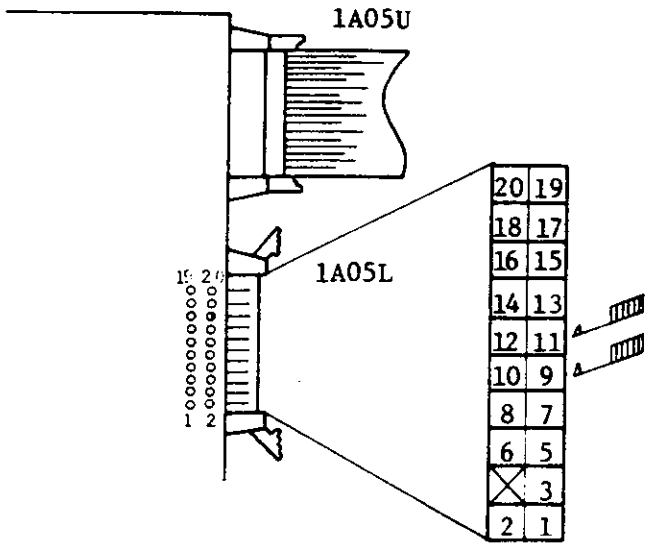


Figure A.9 Troubleshooting Error Code 41

A0130	Air Supply Motor Problem





Logic PCA at 1A05

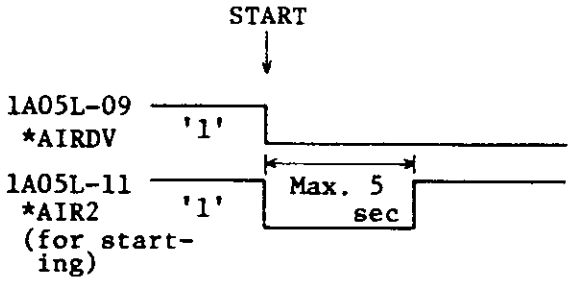
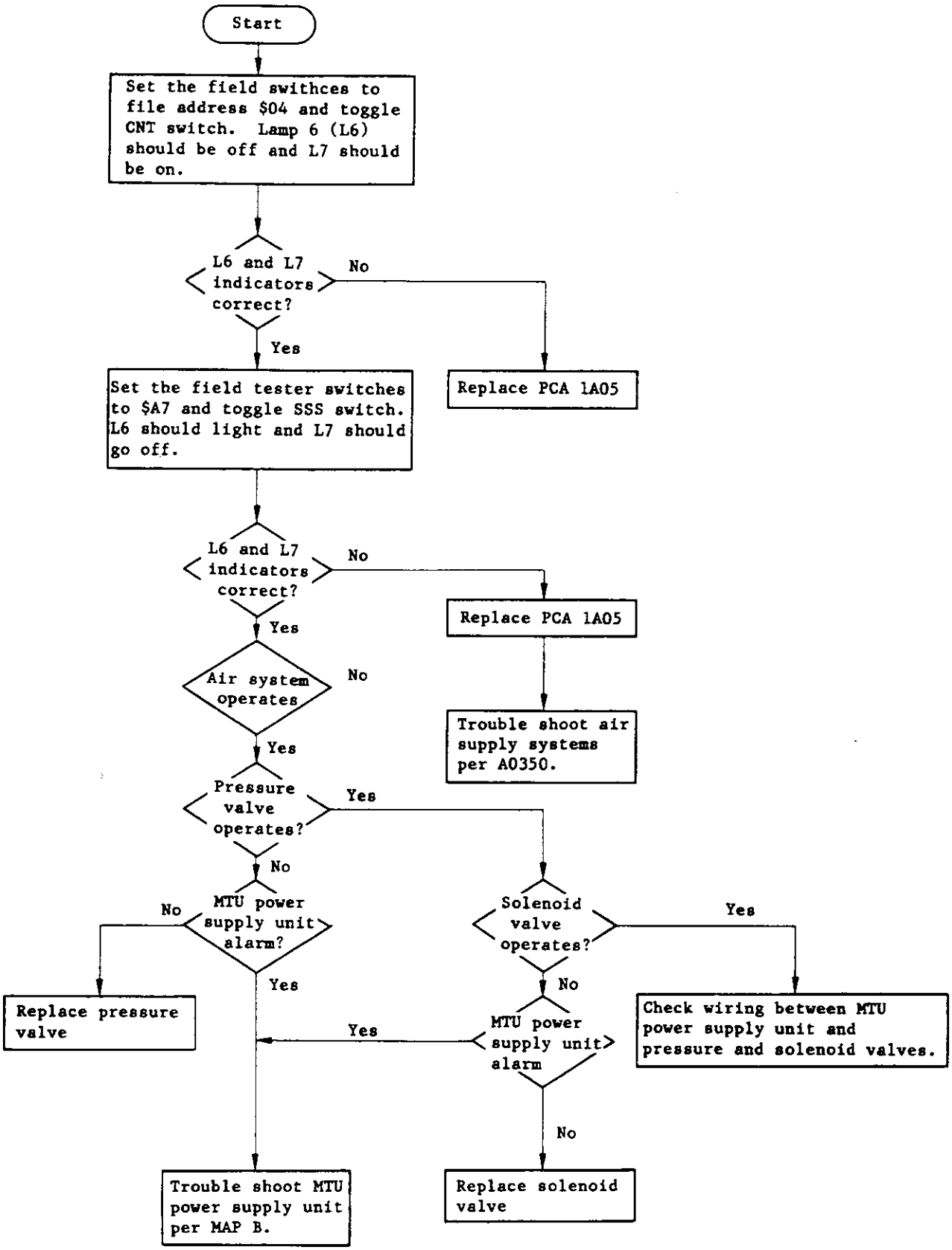
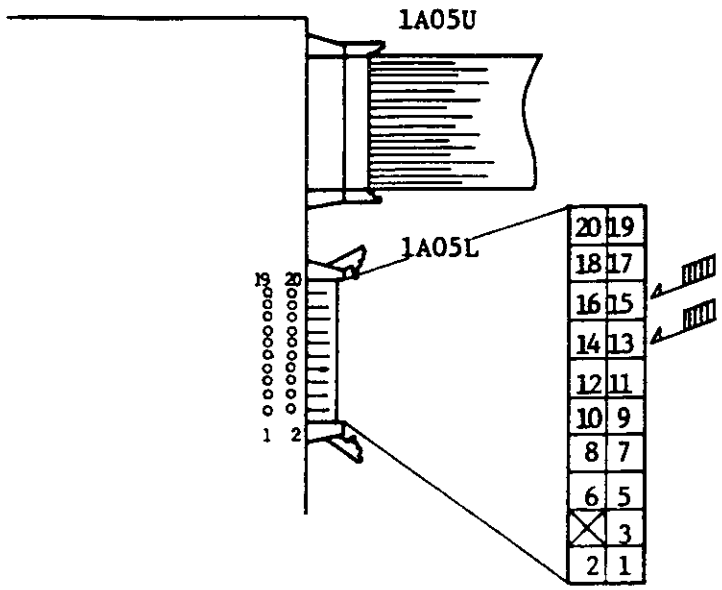


Figure A.10 Timing chart for air supply motor

A0131	Pressure and Solenoid Valves Problem





Logic PCA at 1A05

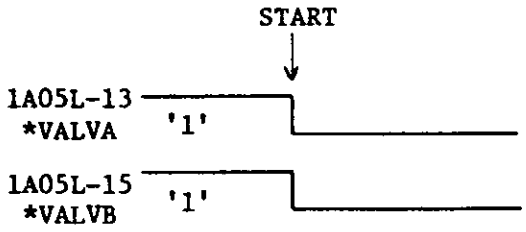
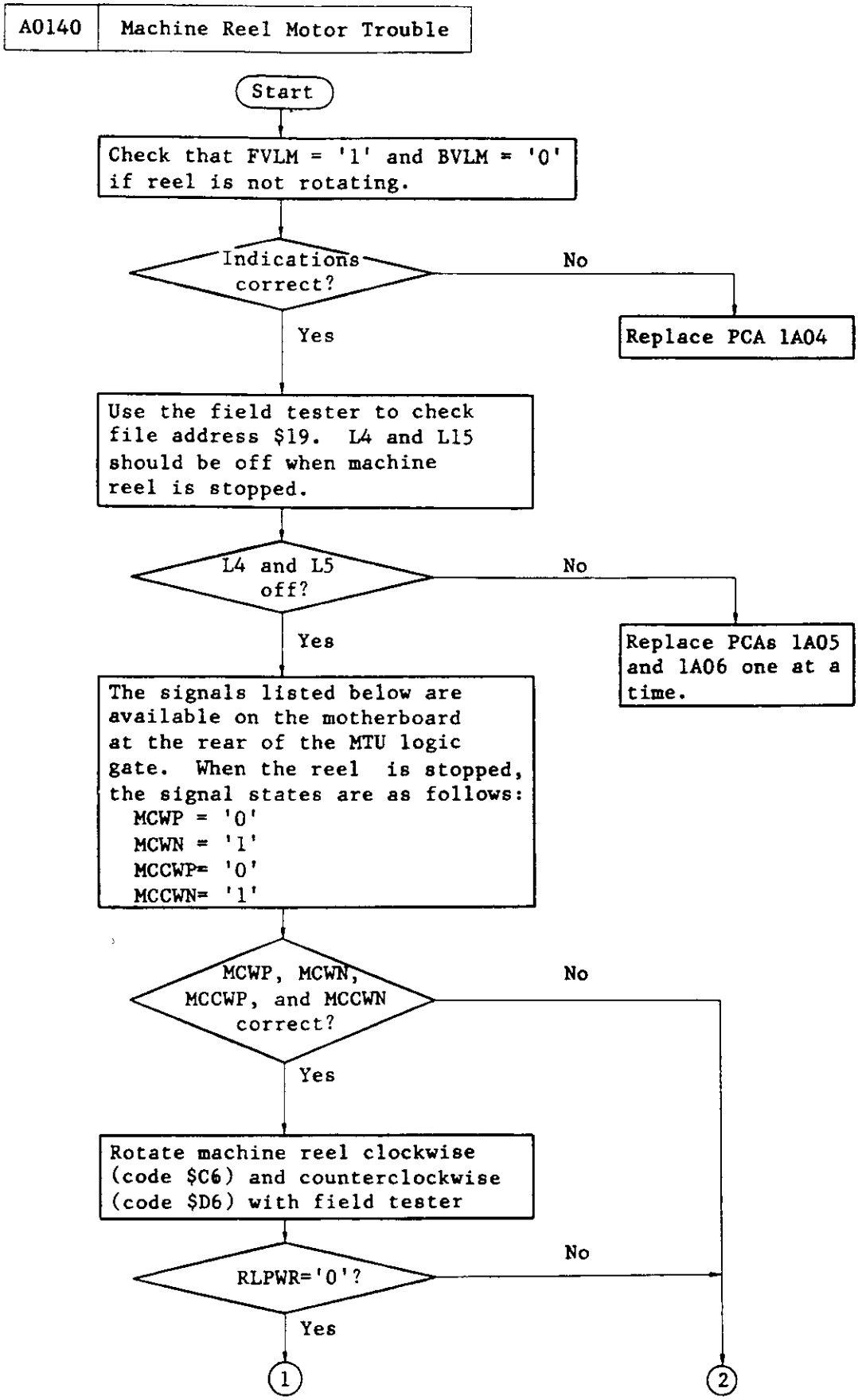
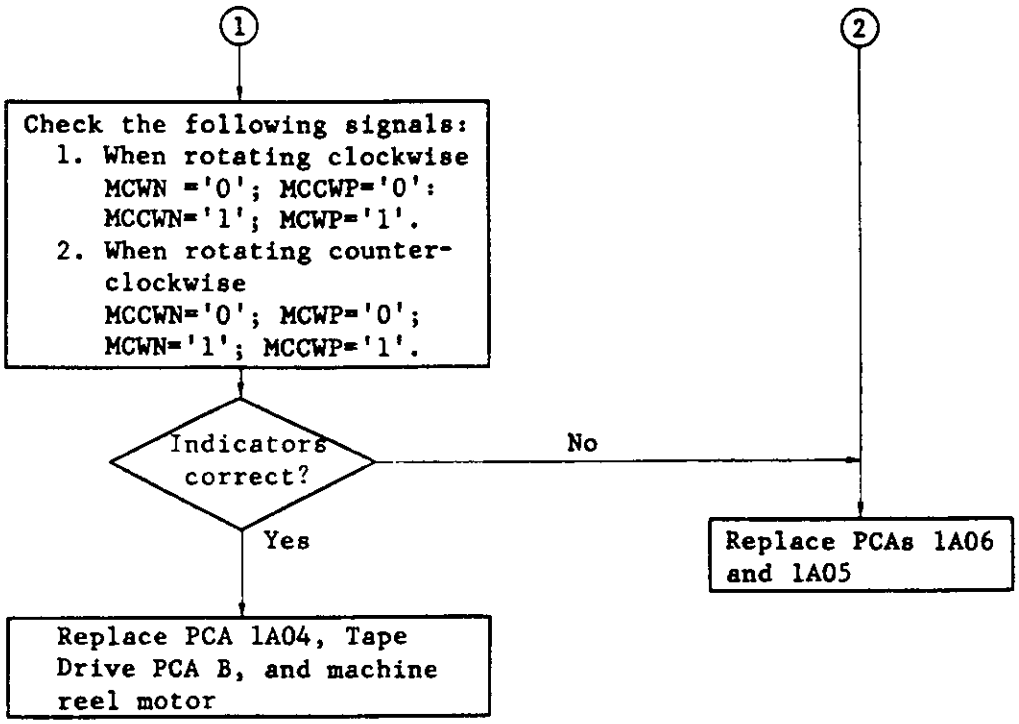


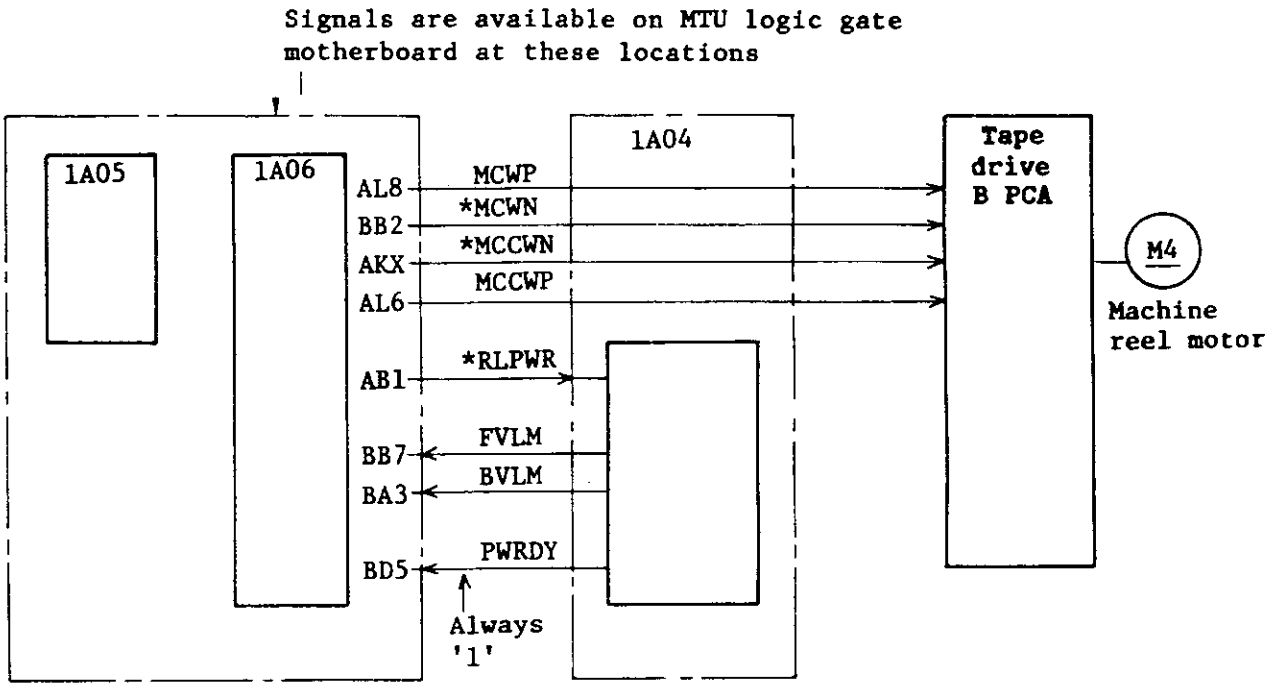
Figure A.11 Timing chart for pressure and solenoid valves


A0140
Machine Reel Motor Trouble
Start
Check that FVLM = '1' and BVLM = '0' if reel is not rotating.
Indications correct?
No
Yes
Replace PCA 1A04
Use the field tester to check file address $19. L4 and L15 should be off when machine reel is stopped.
L4 and L5 off?
No
Yes
Replace PCAs 1A05 and 1A06 one at a time.
The signals listed below are available on the motherboard at the rear of the MTU logic gate. When the reel is stopped, the signal states are as follows:
MCWP = '0'
MCWN = '1'
MCCWP= '0'
MCCWN= '1'
MCWP, MCWN, MCCWP, and MCCWN correct?
No
Yes
Rotate machine reel clockwise (code $C6) and counterclockwise (code $D6) with field tester
RLPWR='0'?
No
Yes
1
2

A0140	Machine Reel Motor Trouble



A0140	Machine Reel Motor Trouble



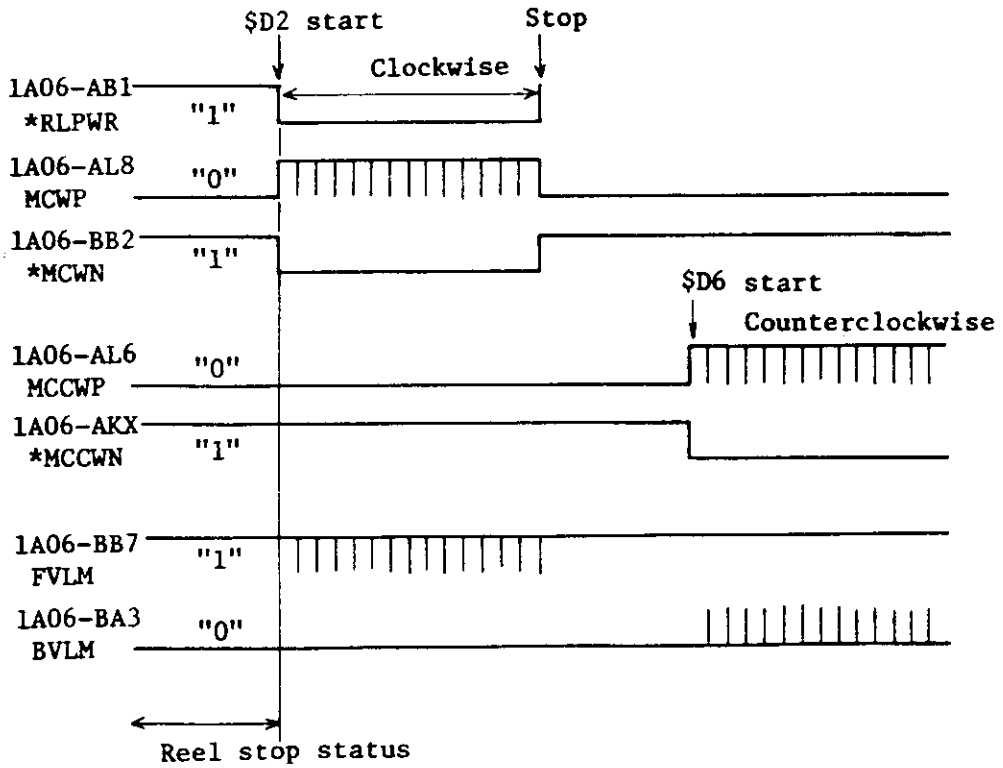
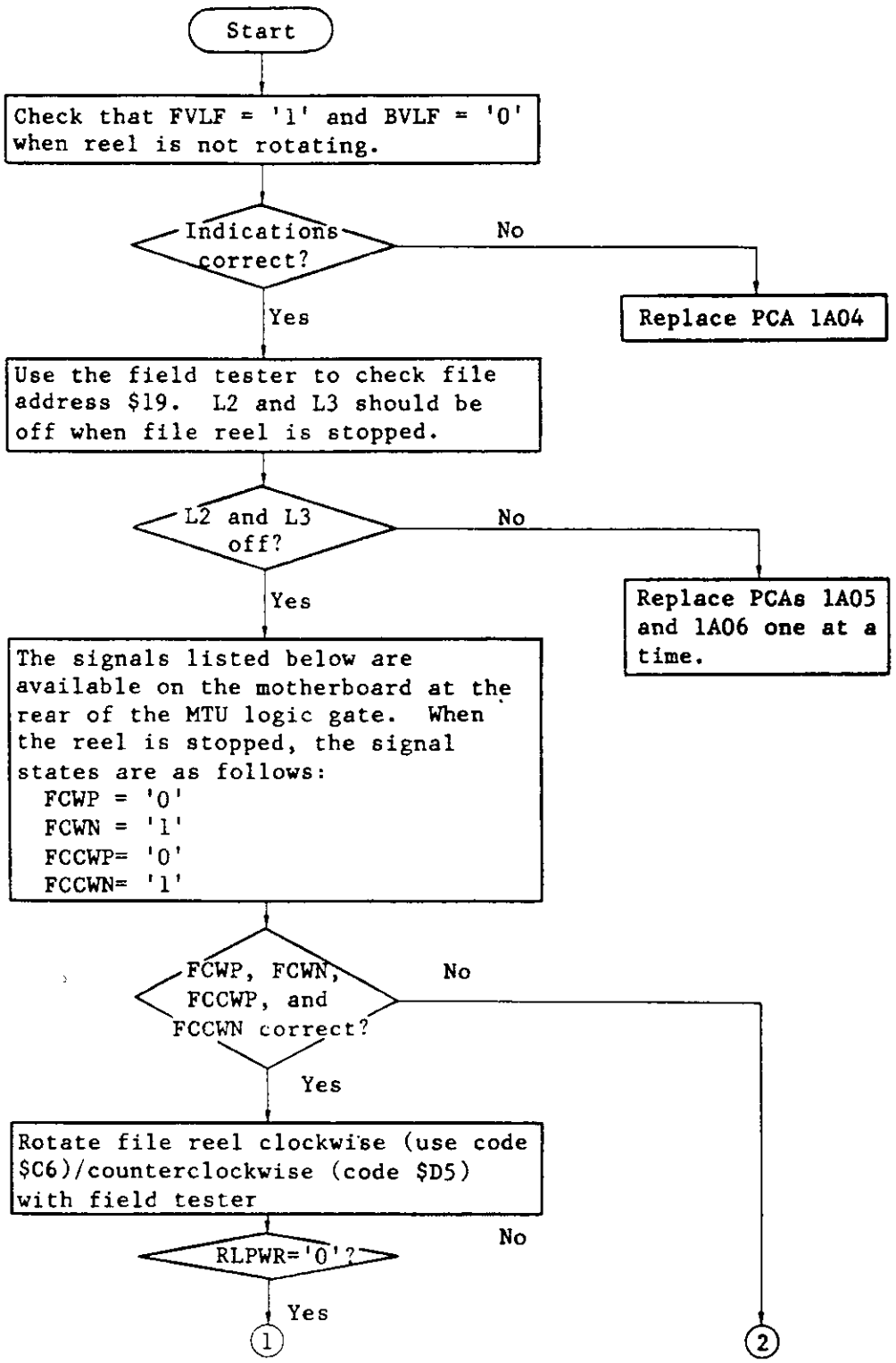
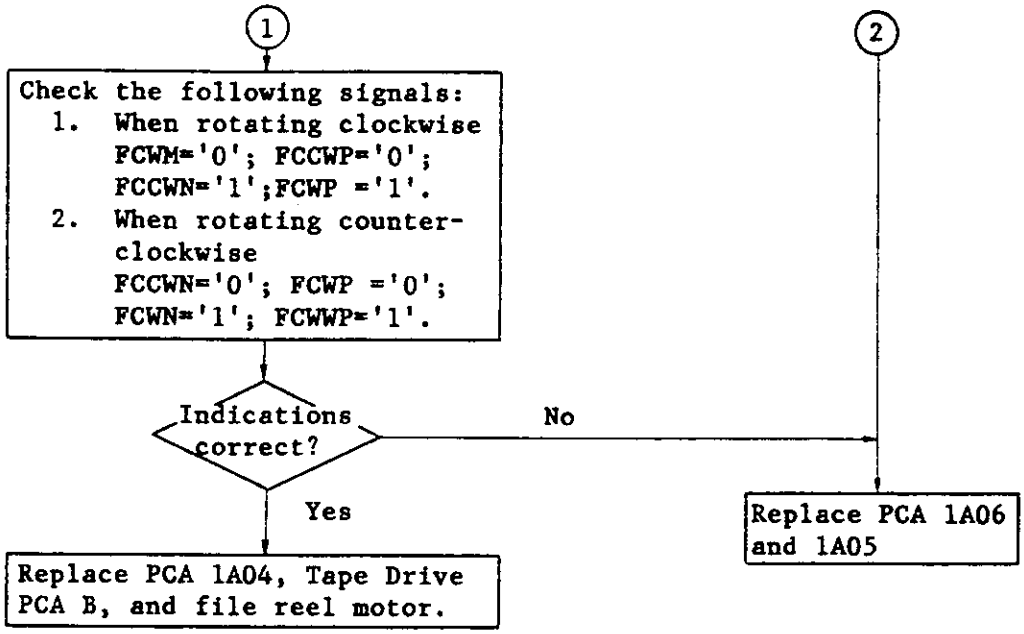


Figure A.12 Machine reel motor troubleshooting

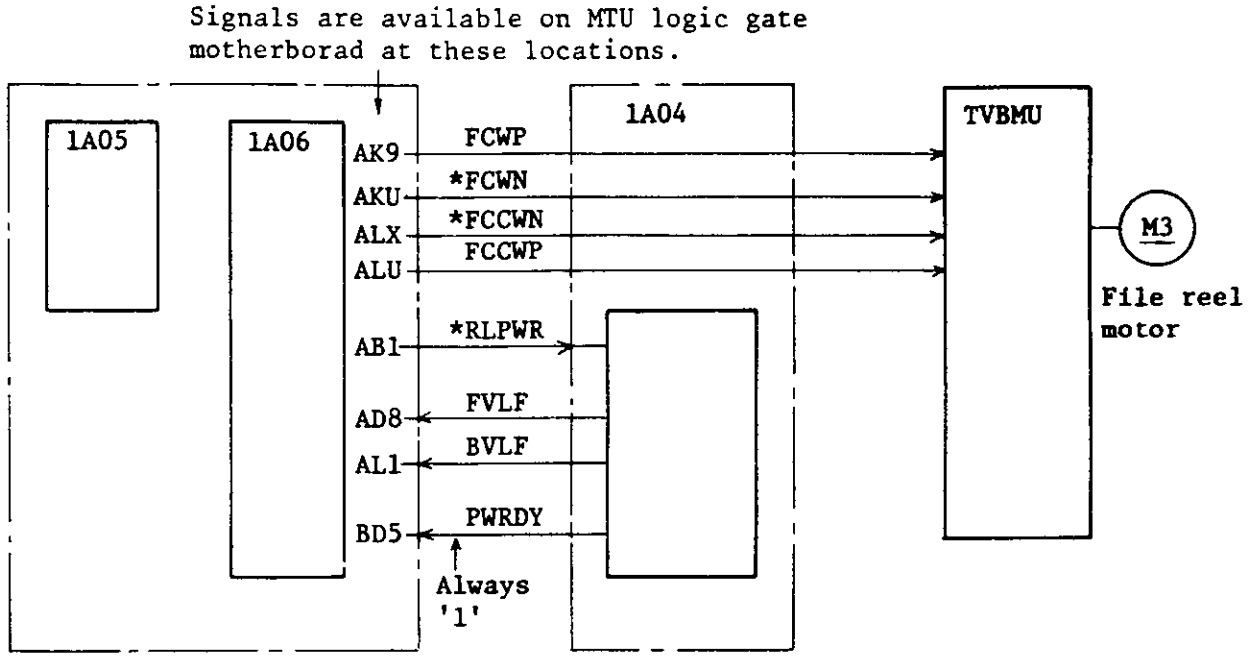
A0141	File Reel Motor Trouble



A0141	File Real Motor Trouble



A0141	File Reel Motor Trouble



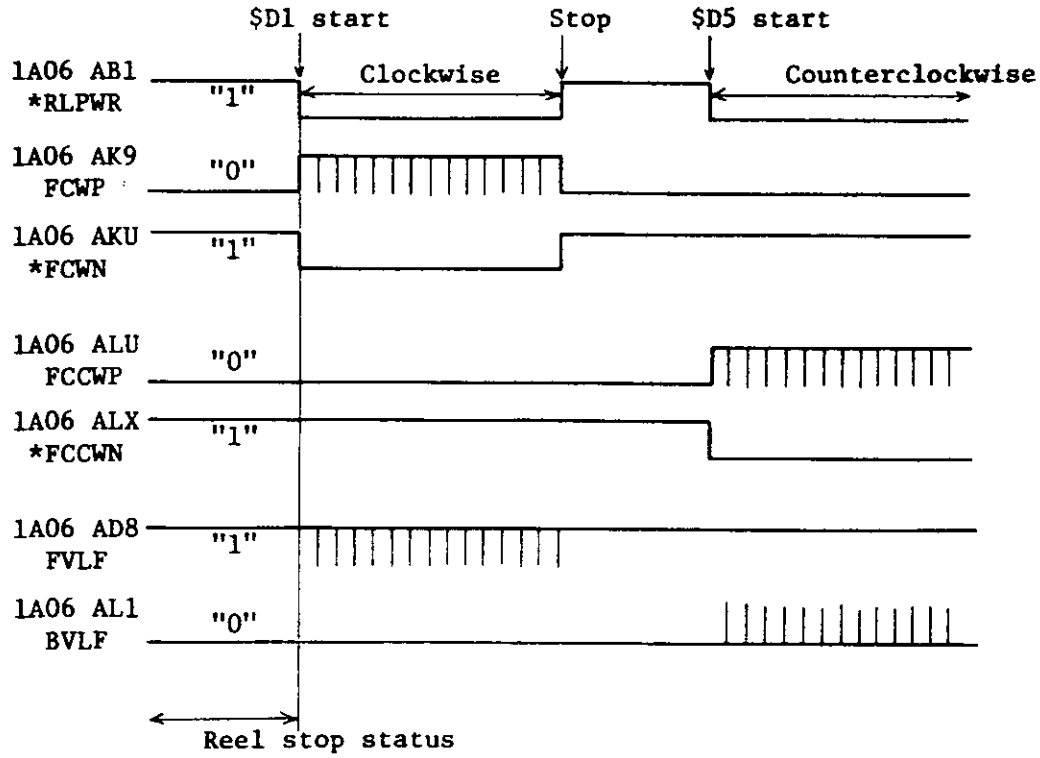
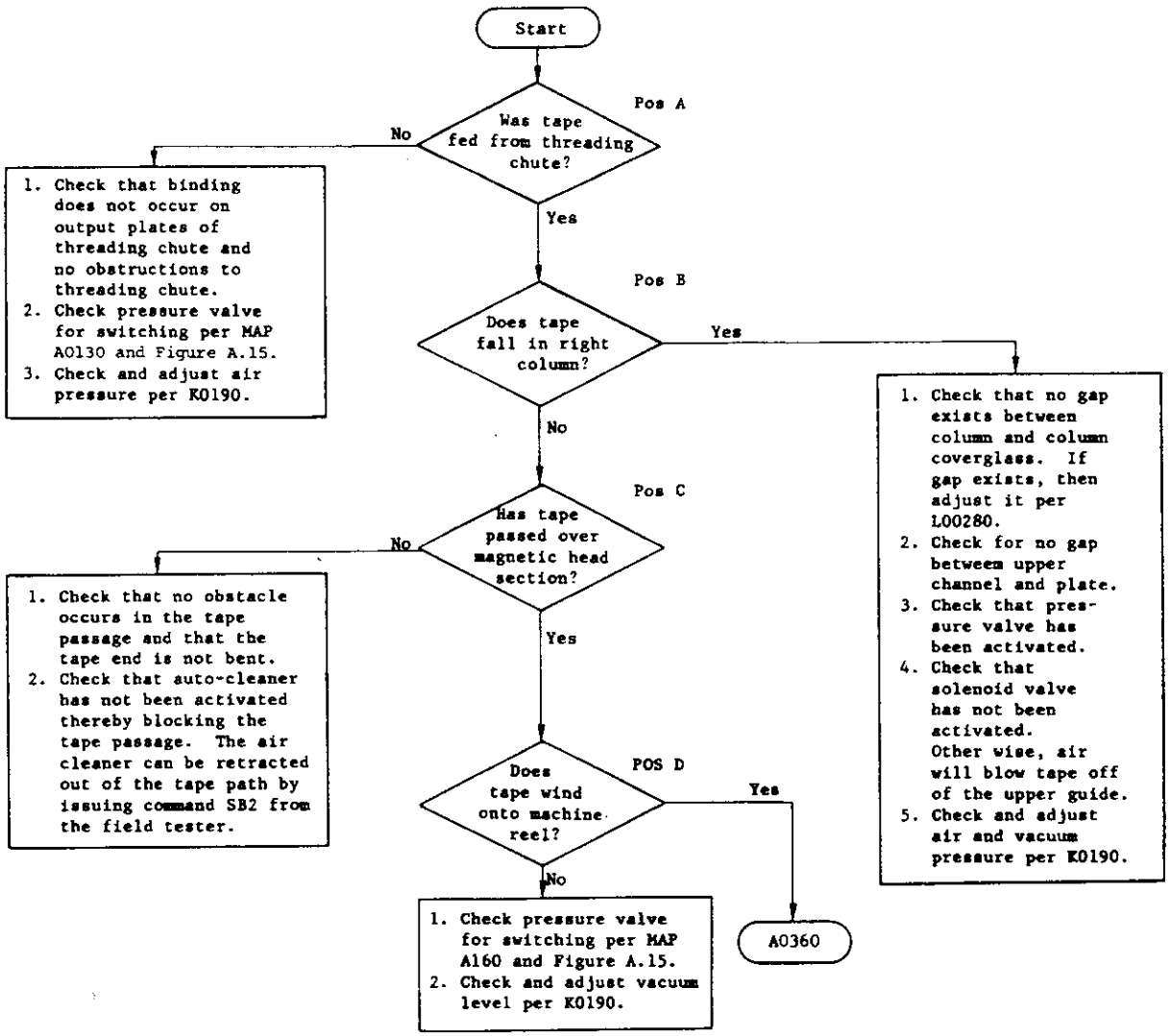


Figure A.13 File reel motor troubleshooting

A0150	Tape Does Not Wind Onto Machine Reel



Note:
(1) Tape does not wind onto machine reel even though it has been loaded from file reel.

(2) See accompanying figure for referenced tape positions (pos).

A0150	Tape Does Not Wind Onto Machine Reel

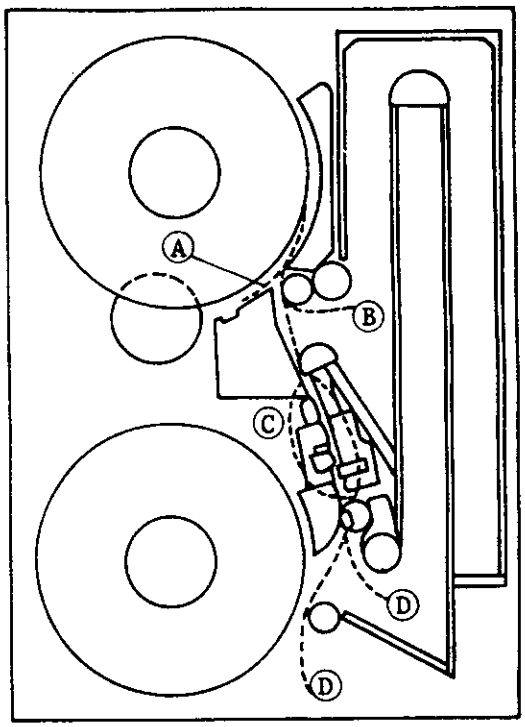
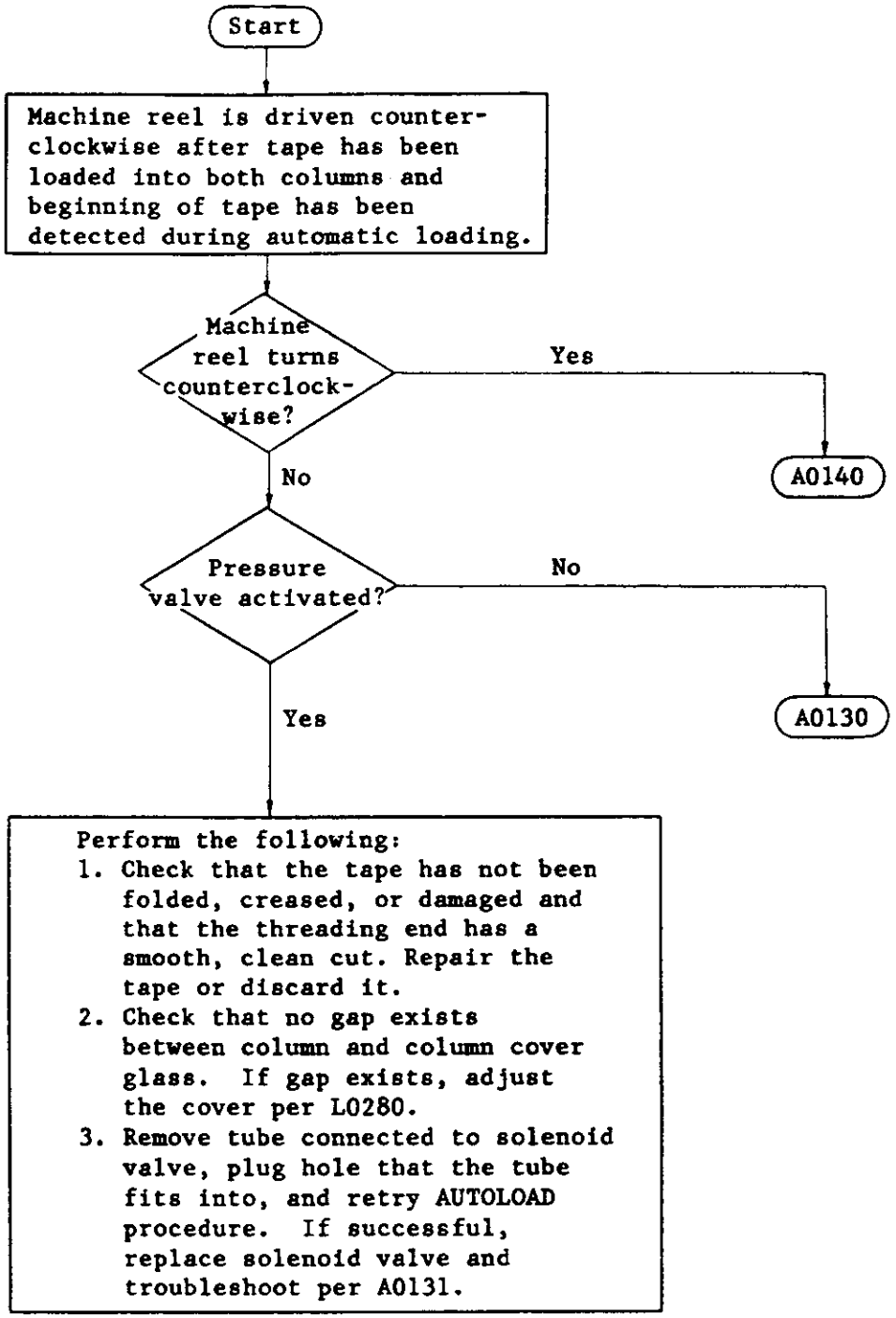


Figure A.14 Tape positions

A0160	Tape in Vacuum Column Problem



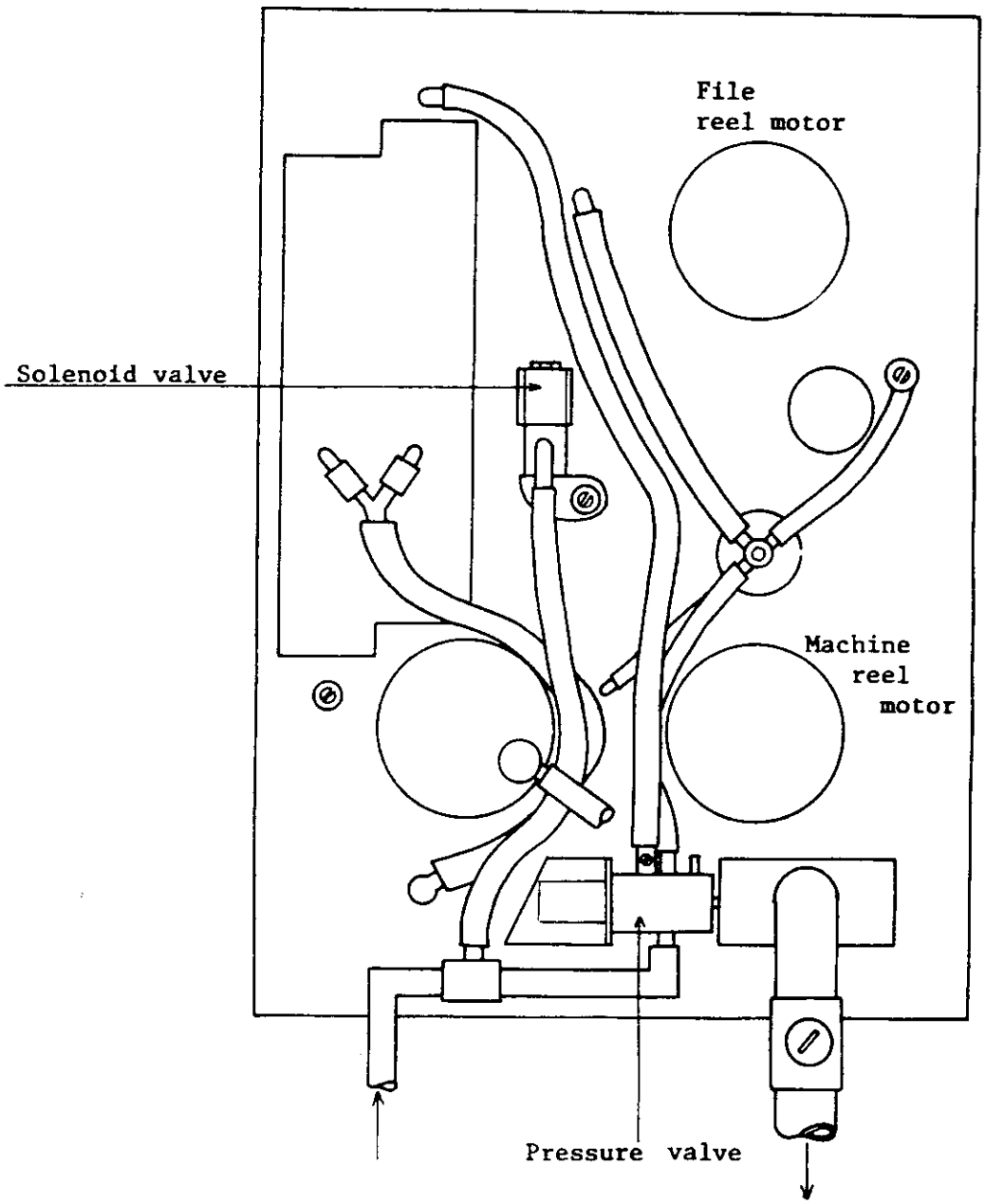
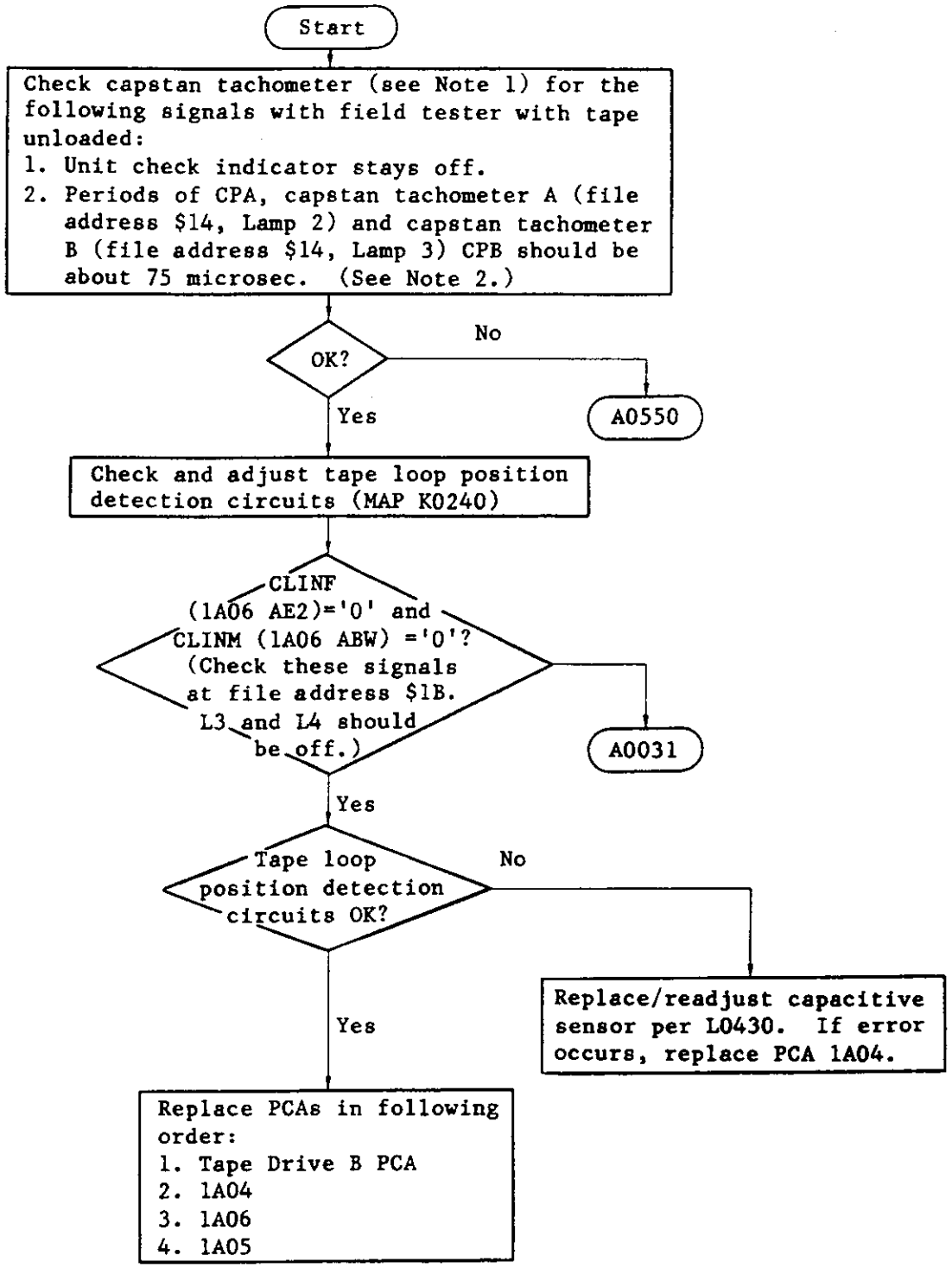


Figure A.15 Pressure/vaccum route

A0170	Error Codes 60 through 63

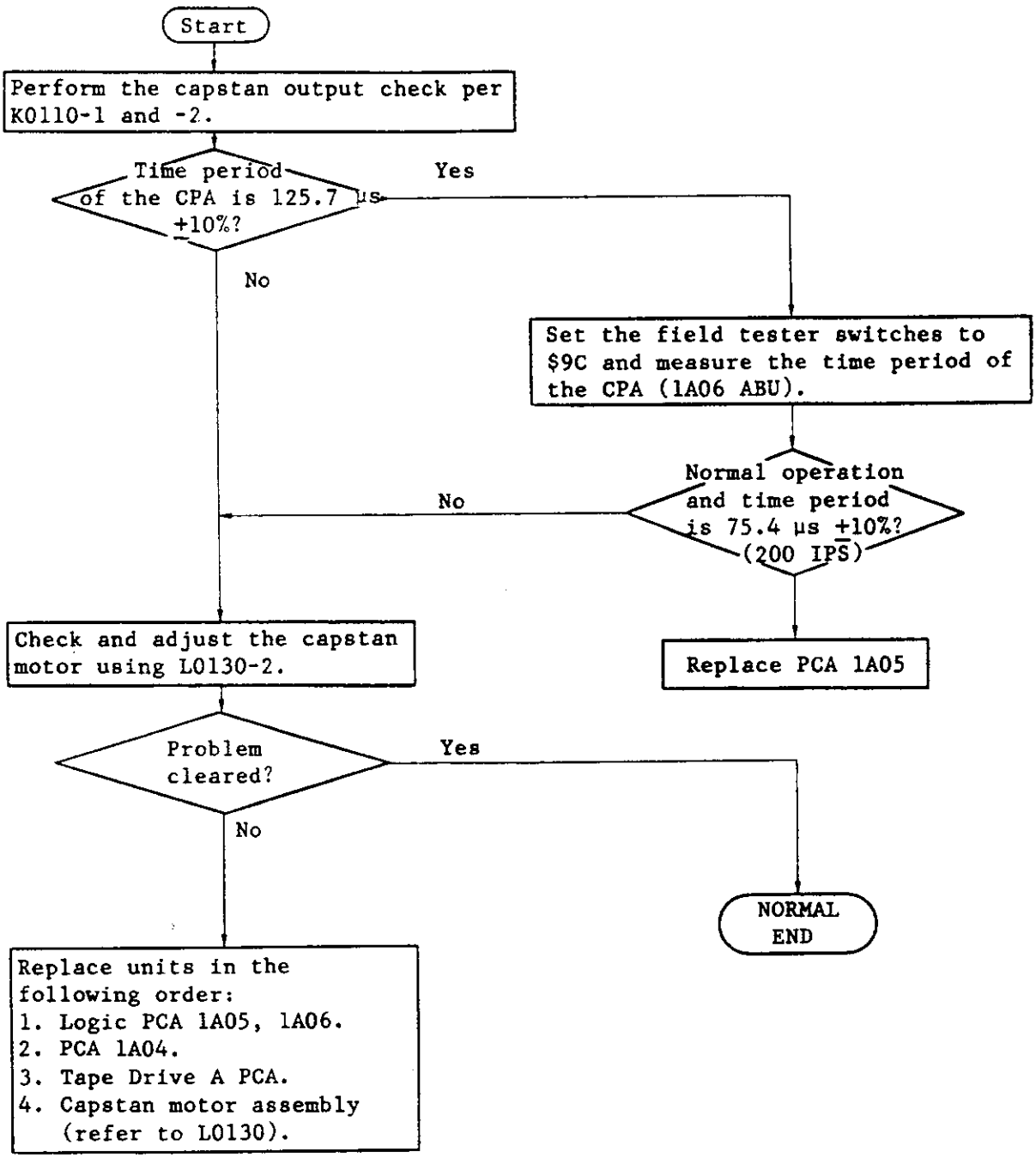
Tape Loop Alarm



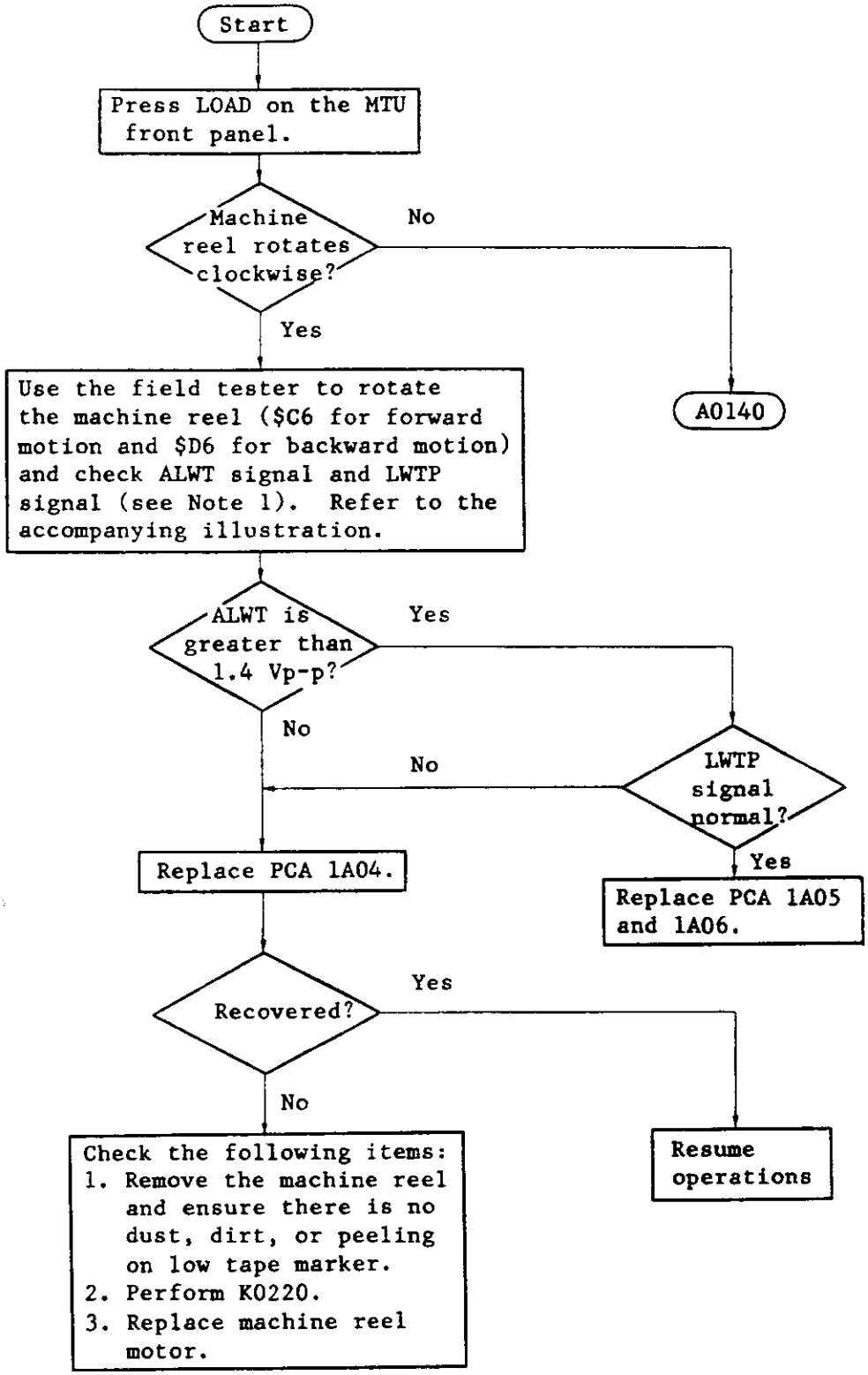
Notes:

(1) The unit check signal can be monitored at file address $04, bit 0.
(2) CPA and CPB can also be monitored at AA6 and AB6 at the MTU logic gate motherboard, respectively.
(3) A complete checkout of the capstan and tape loop is contained in K0110 and K0240.

A0180	Tape Does Not Run in Standard Speed



A0300	Error Code 42



Note:
(1) Signals can be monitored at the MTU logic gate motherboard.

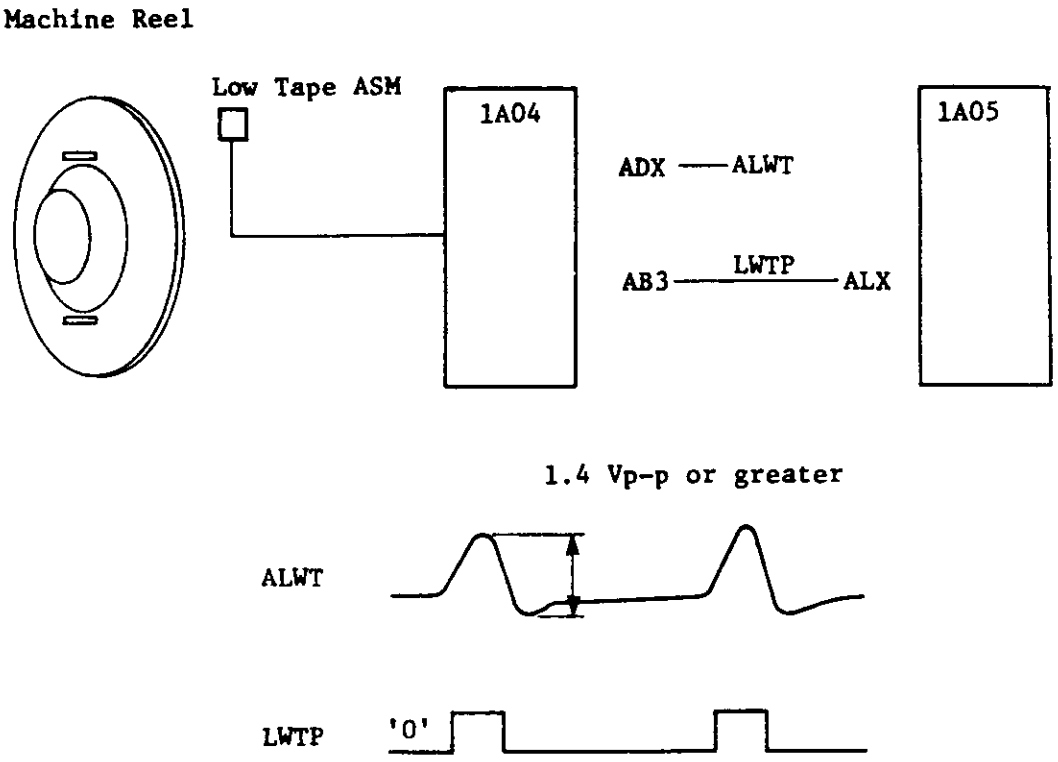


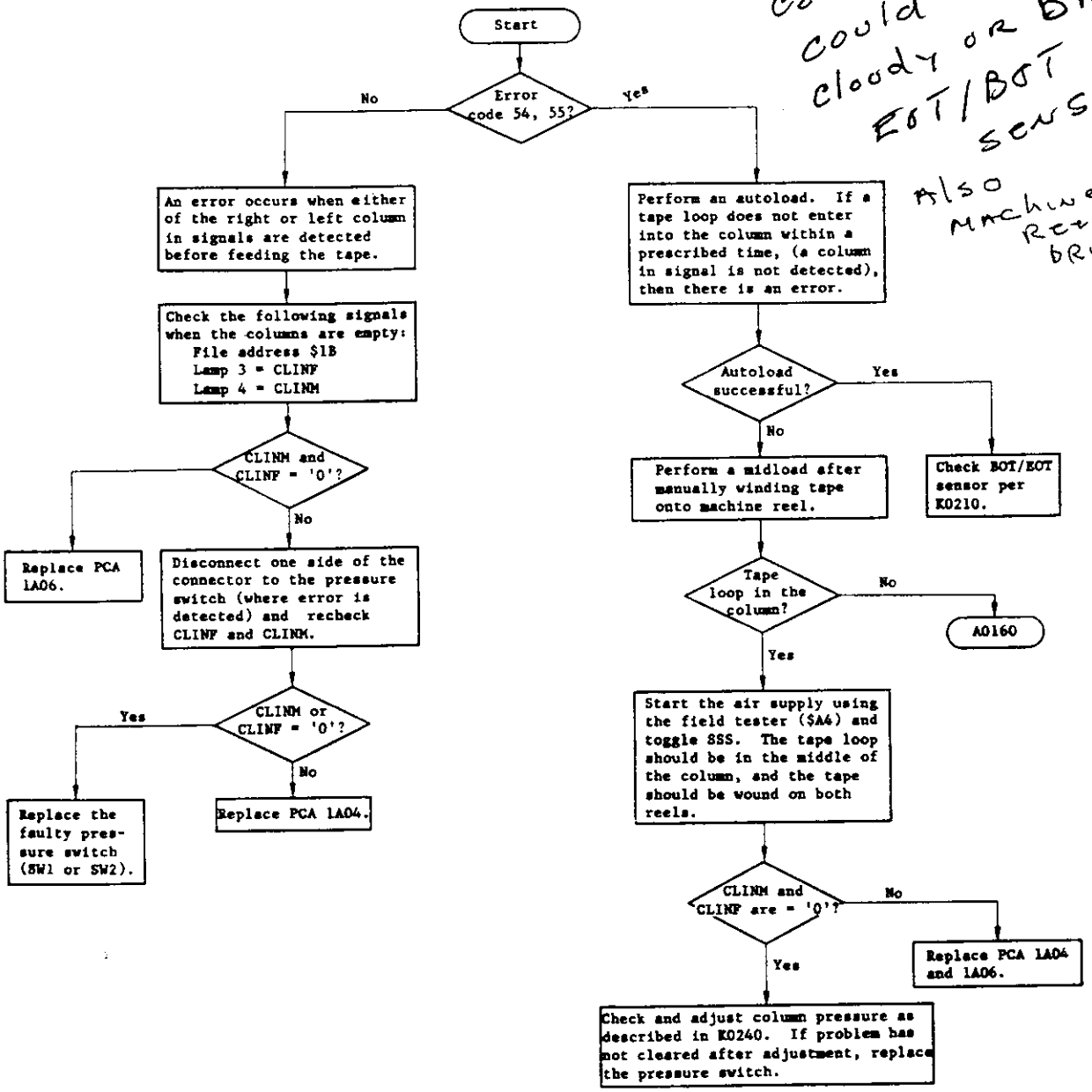
Figure A.16 Troubleshooting Error Code 42

3057660

A0310	Error Codes 46, 47, 54, or 55

code 54 could be cloudy or bad EOT/BOT sensor

also machine reel brushes



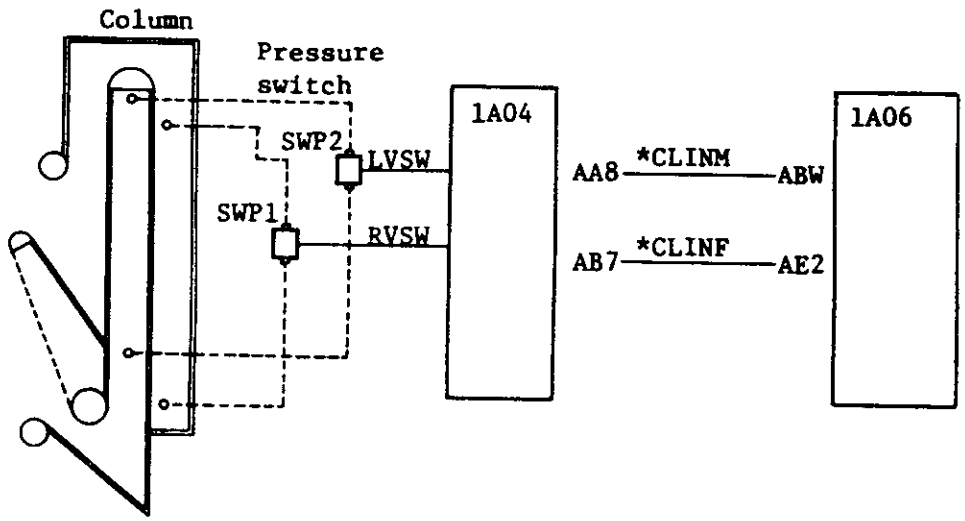
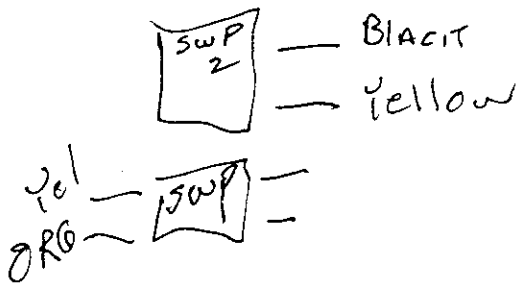
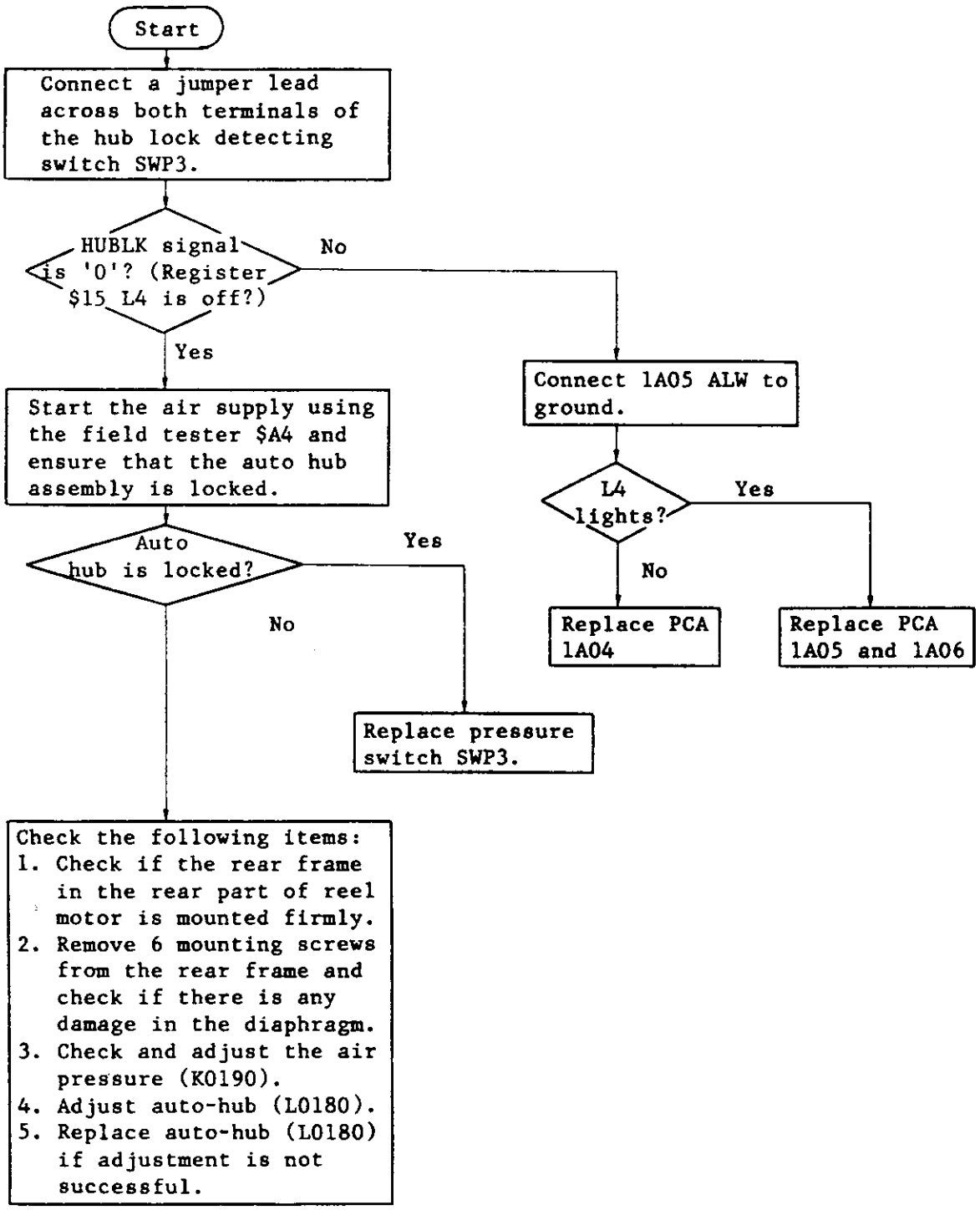


Figure A.17 Troubleshooting Error Codes 46, 47, 54, and 55



A0320	Error Codes 43 and 64



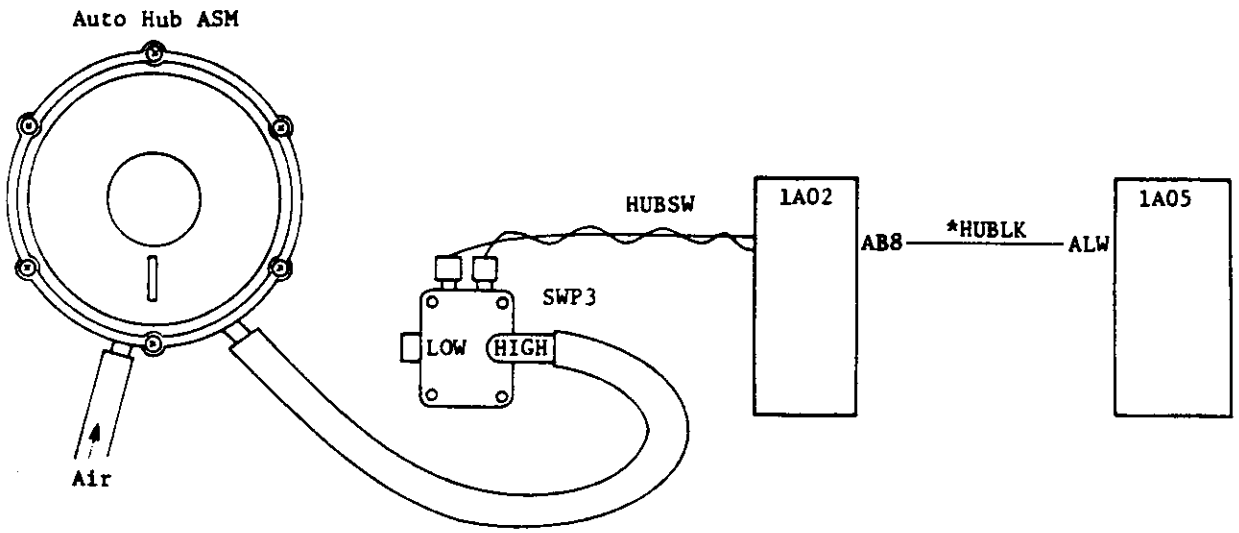
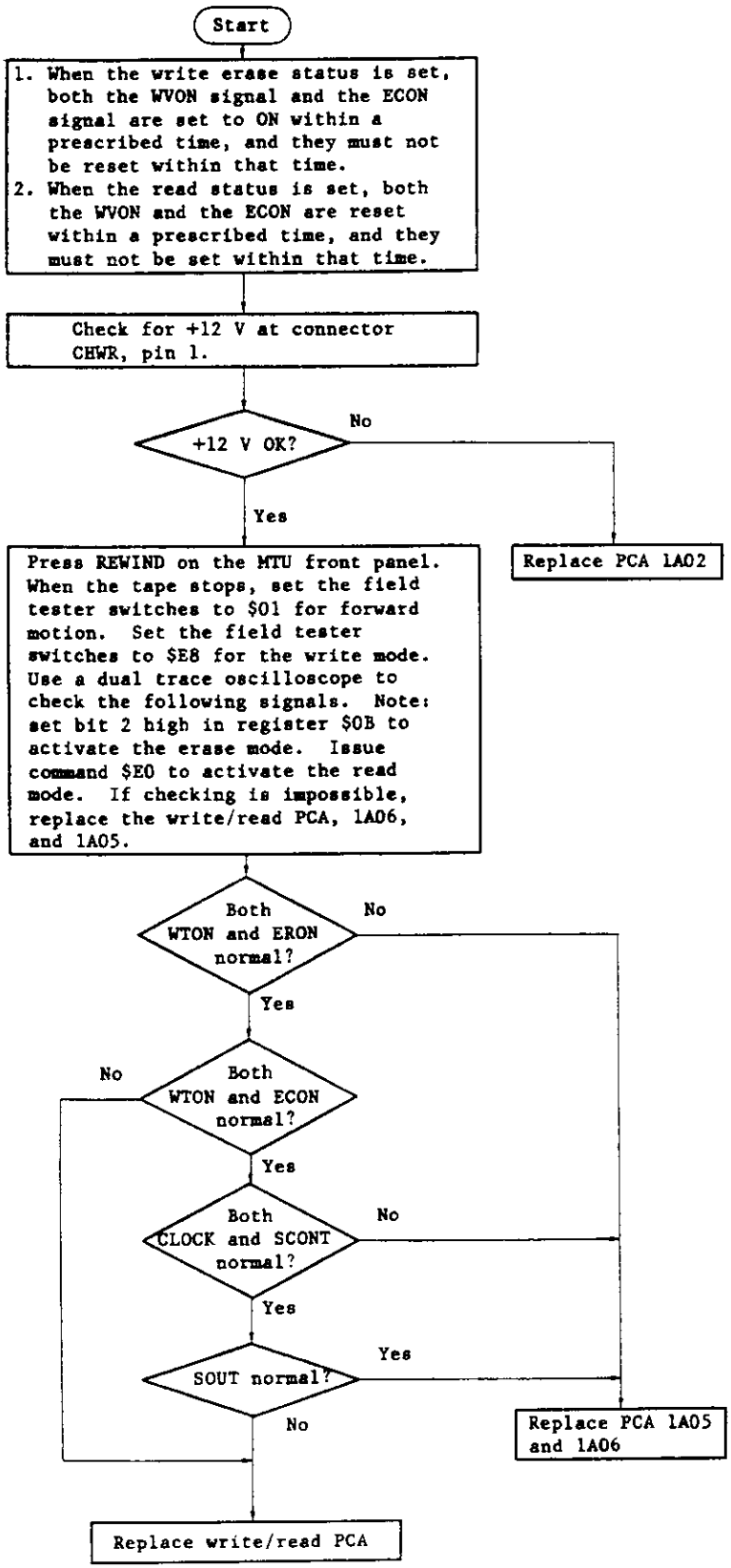


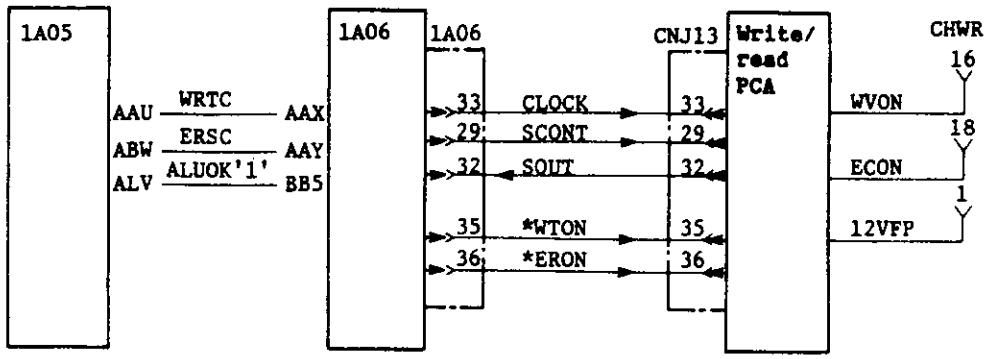
Figure A.18 Troubleshooting Error Codes 43 and 46

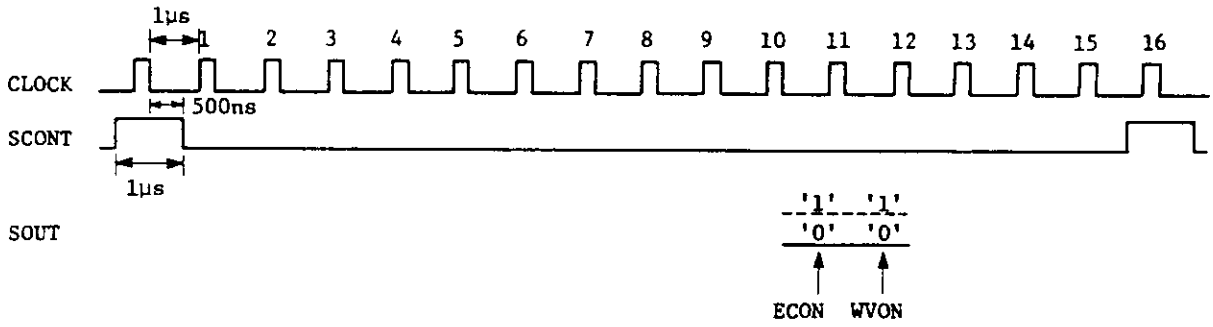
A0330	Error Codes 80, 81, 82, 83, and 84

Abnormality in Write/Read Status.



A0340	Error Code 85





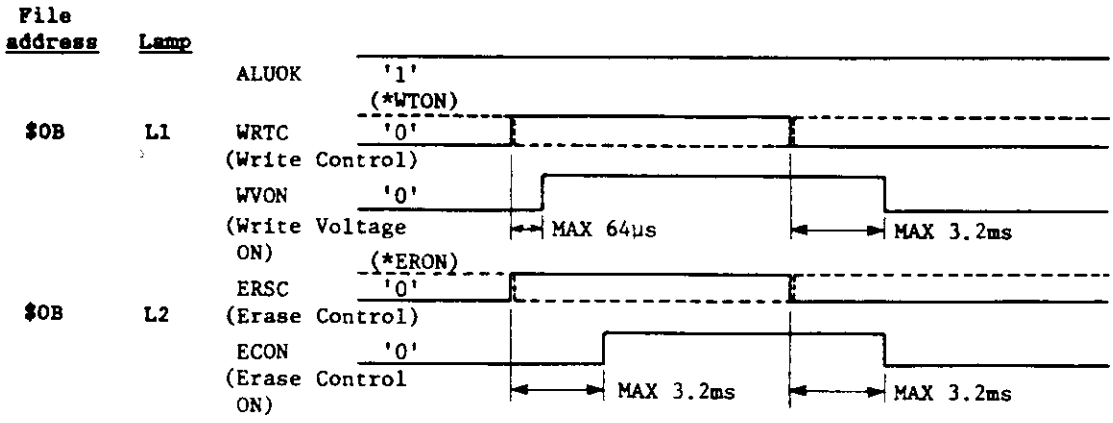
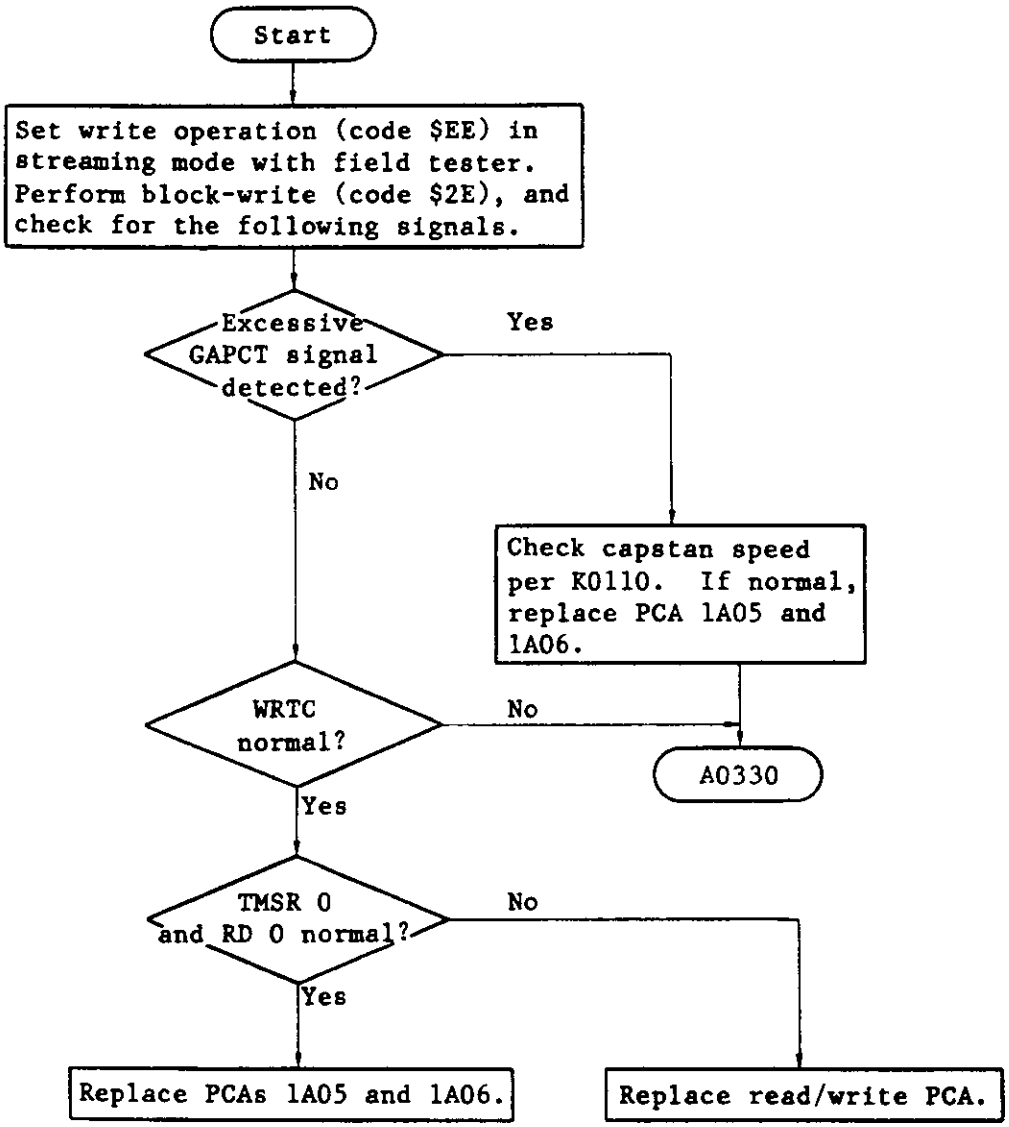


Figure A.19 Troubleshooting Error Codes 80 through 84

A0340	Error Code 85



Notes:

(1) An error results if no IBG (inter-block gap) is detected within a specified distance. Write voltage is normally set to ON within the IBG when writing data in the streaming mode.

(2) Signals can be accessed on the MTU logic gate motherboard.

A0340	Error Code 85

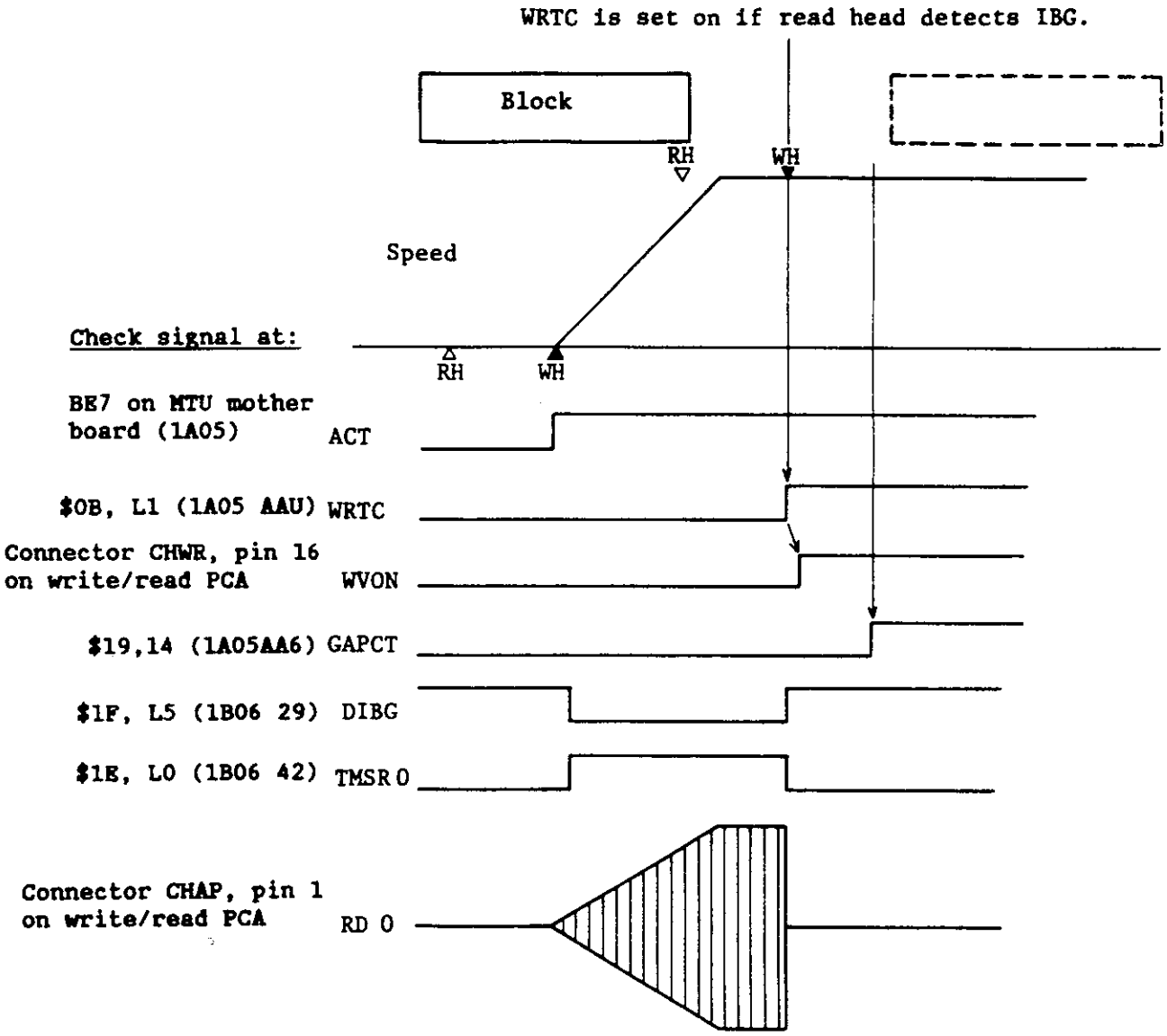
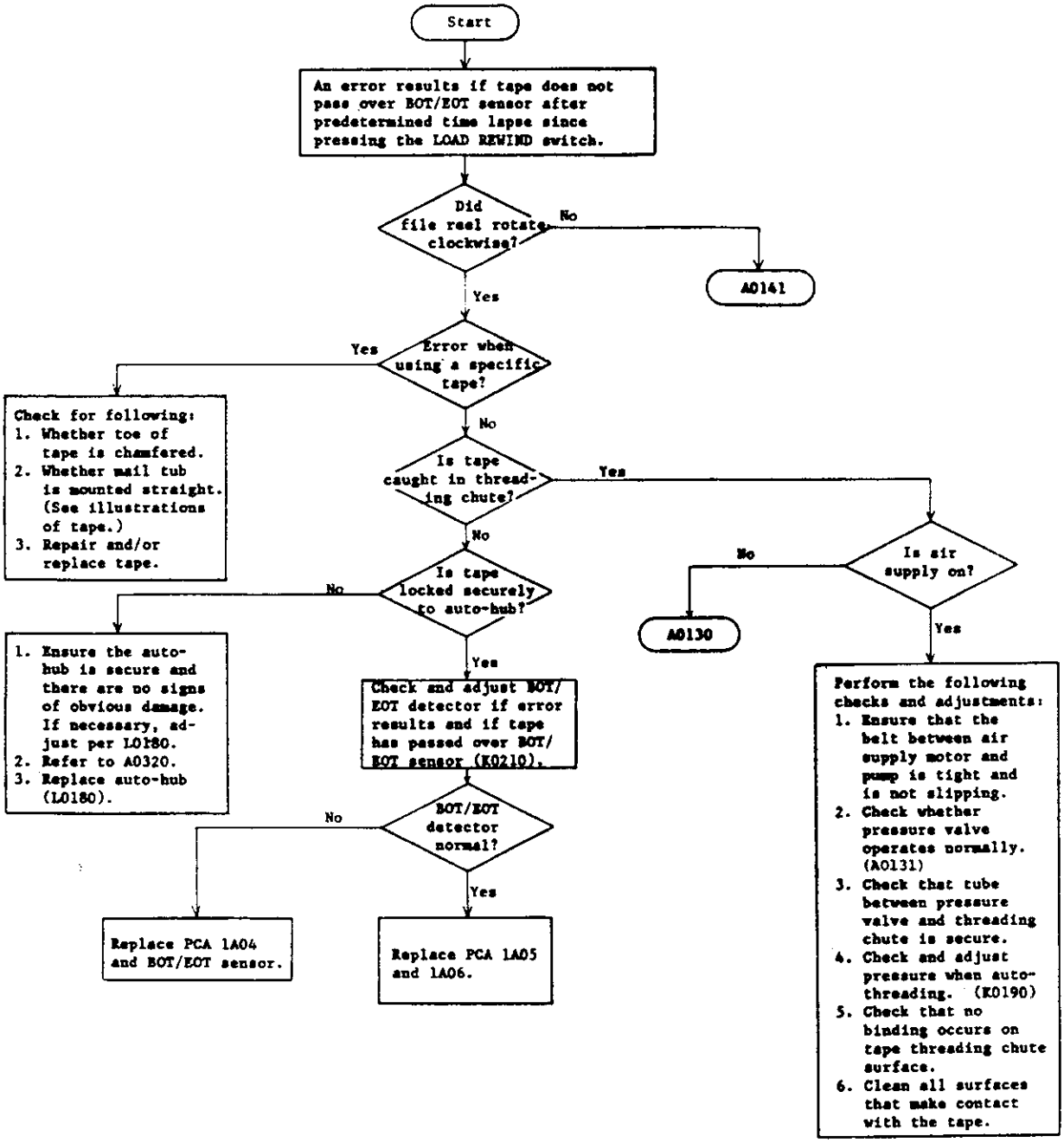


Figure A.20 Troubleshooting Error Code 85

A0350	Error Code 49

Tape did not reach BOT sensor.



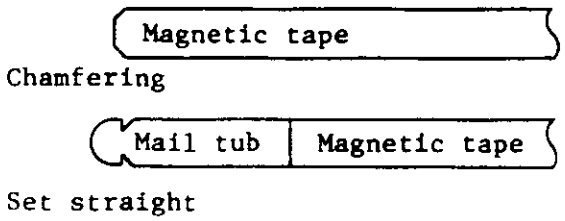
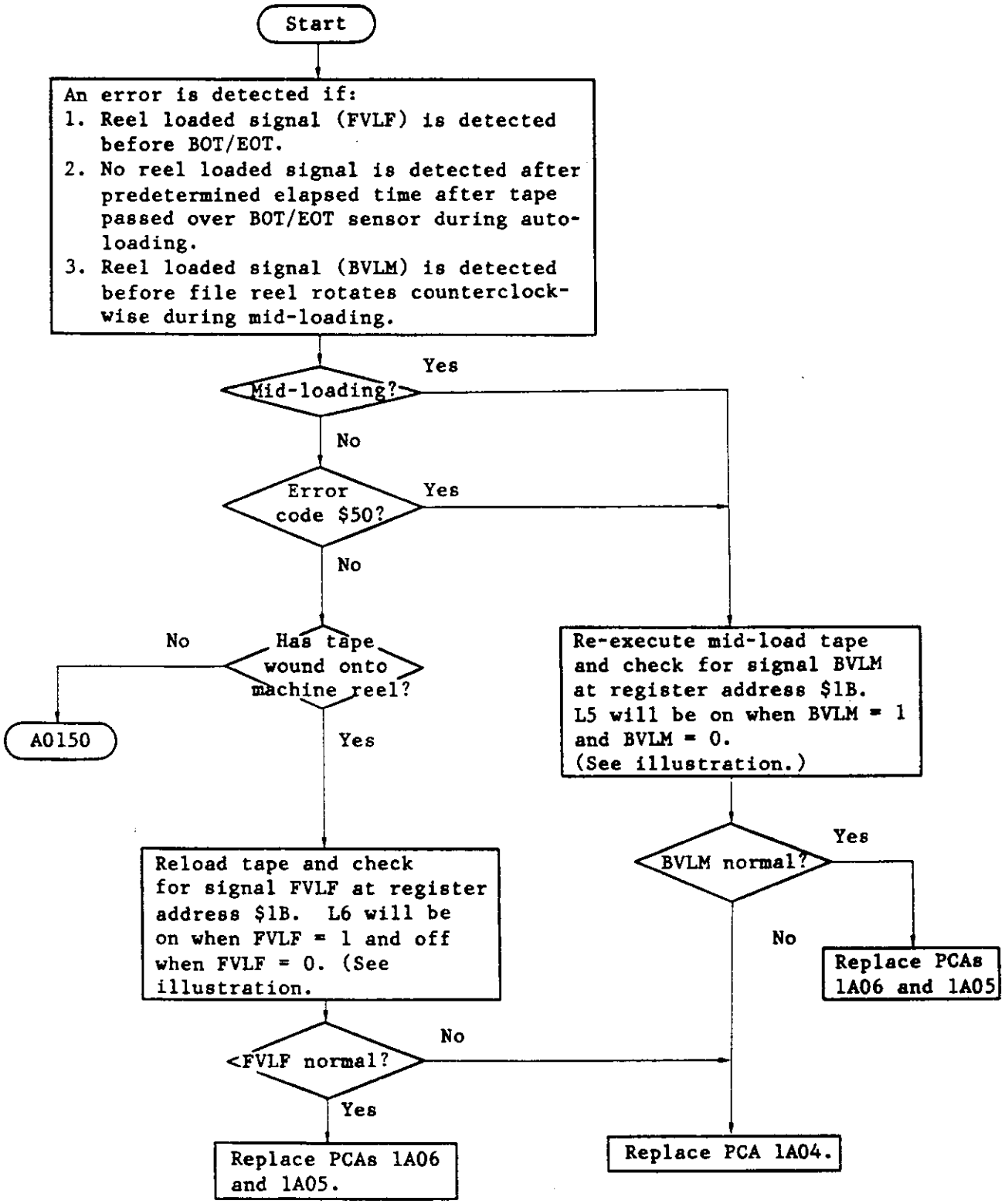


Figure A.21 Tape rim end

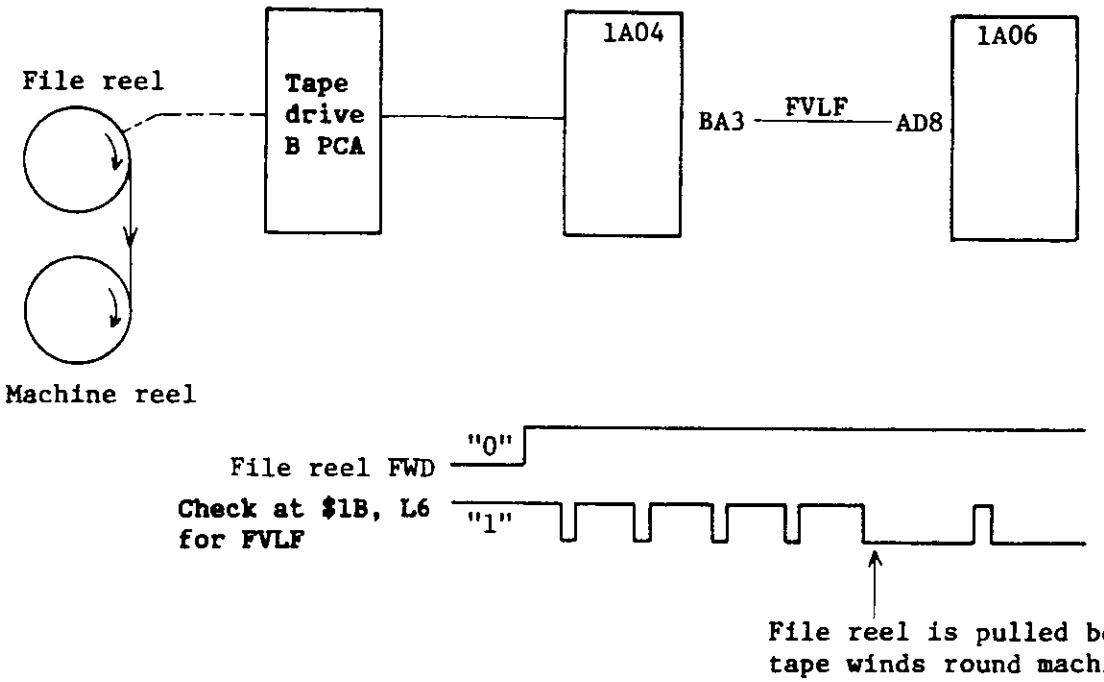
A0360	Error Codes 50 and 51



Notes: FVLF: Forward voltage limit file.
BVLM: Backward voltage limit machine.

FVLF: Forward Voltage Limit File

BVLM: Backward Voltage Limit Machine



Reel Loaded check when auto-loading

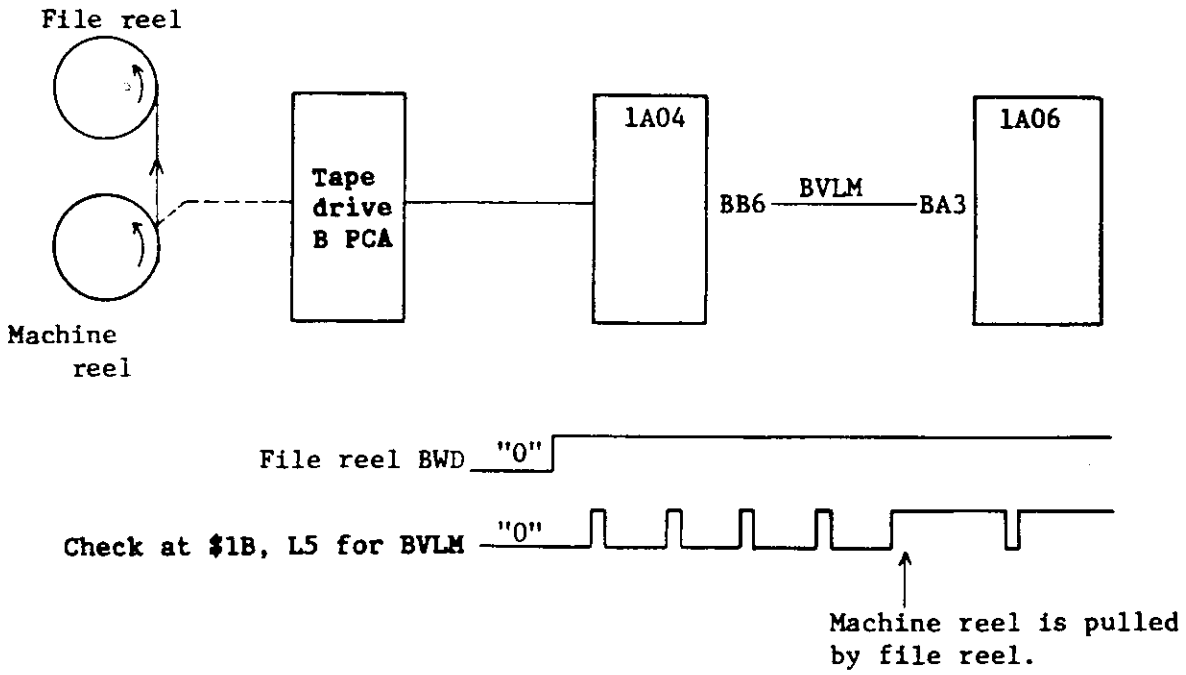
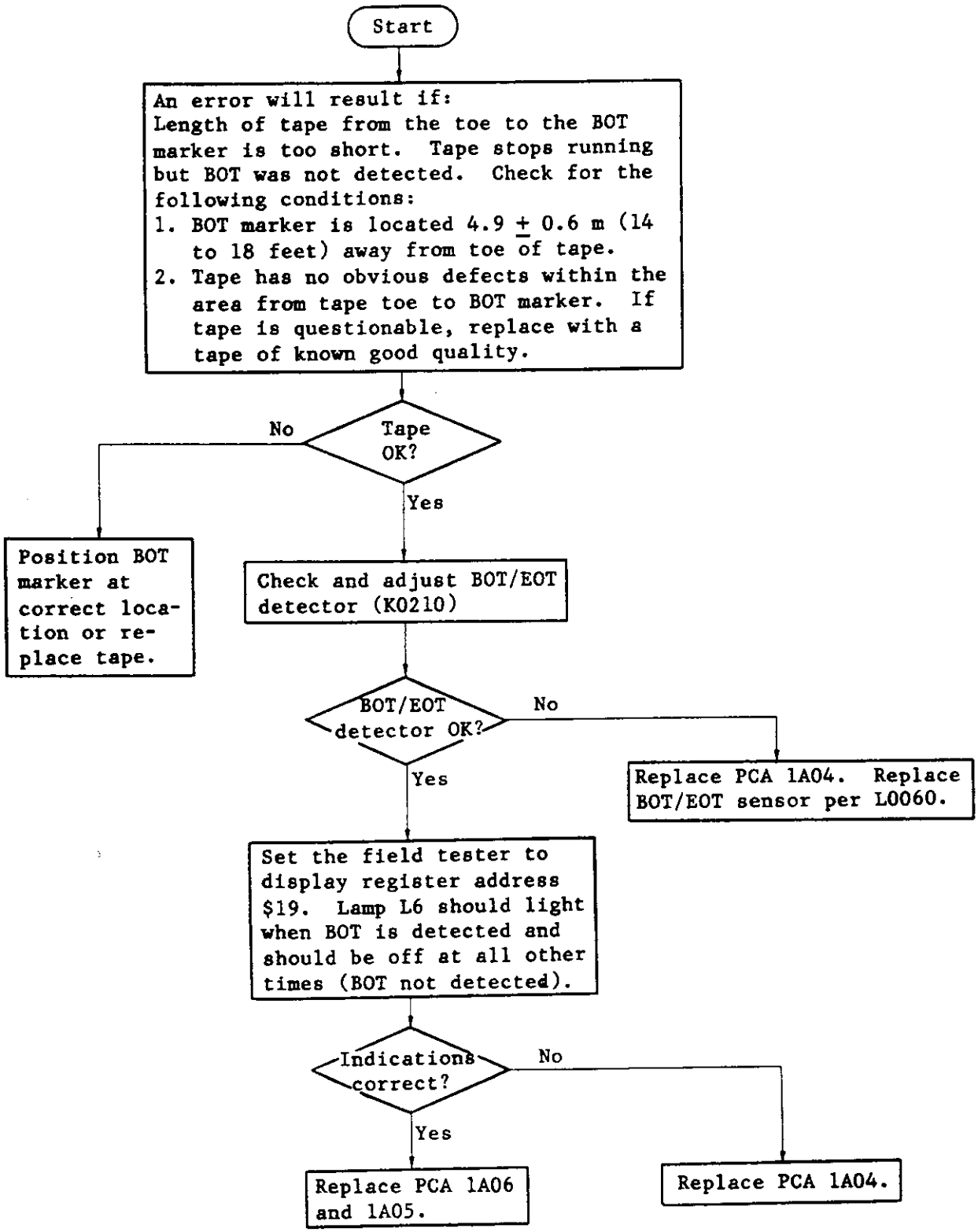


Figure A.22 Reel loaded check when mid-loading

A0380	Error Code 52



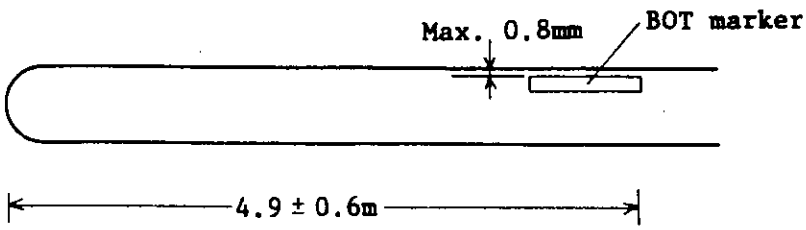
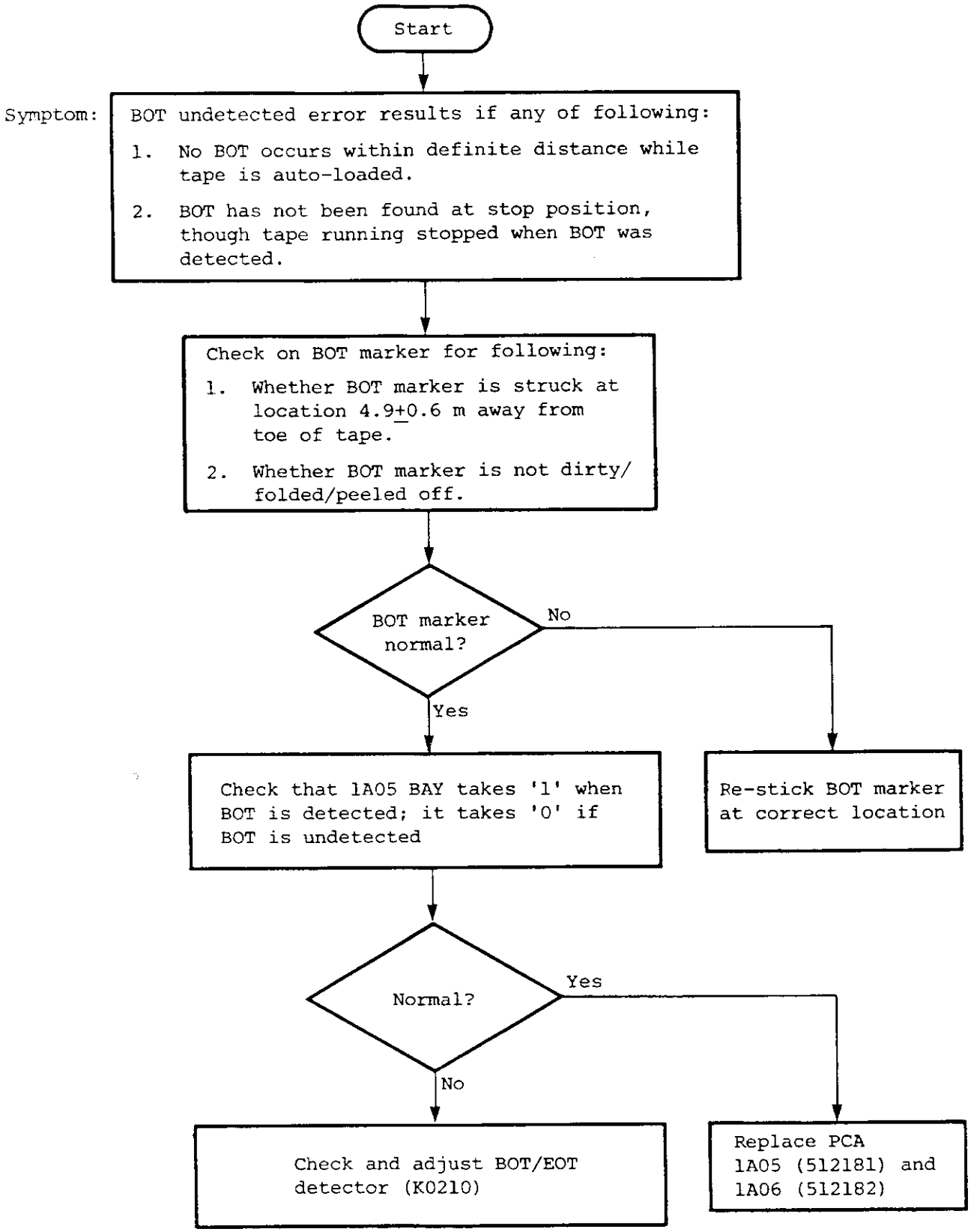
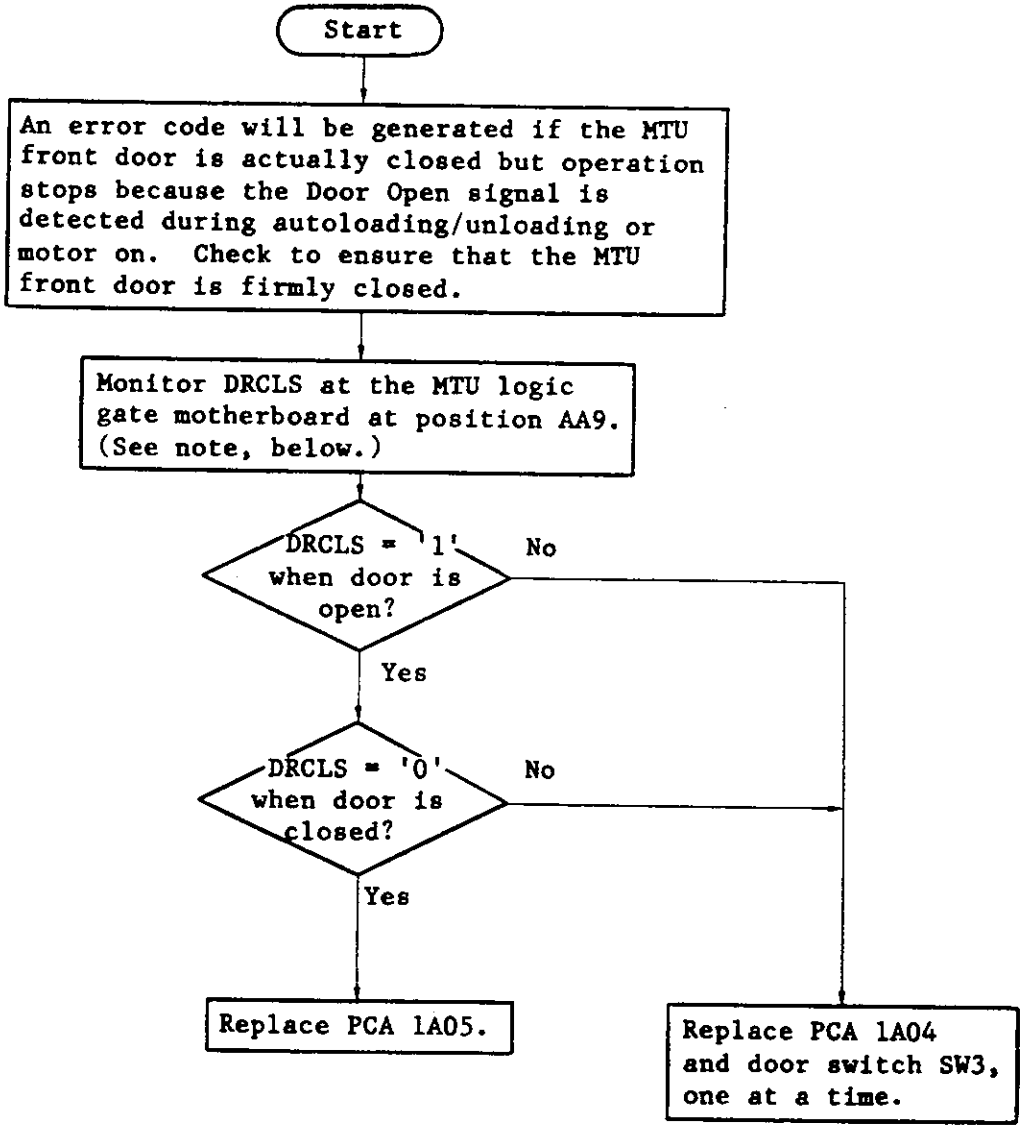


Figure A.23 Troubleshooting Error Code 52

A0400	BOT Marker is not Detected



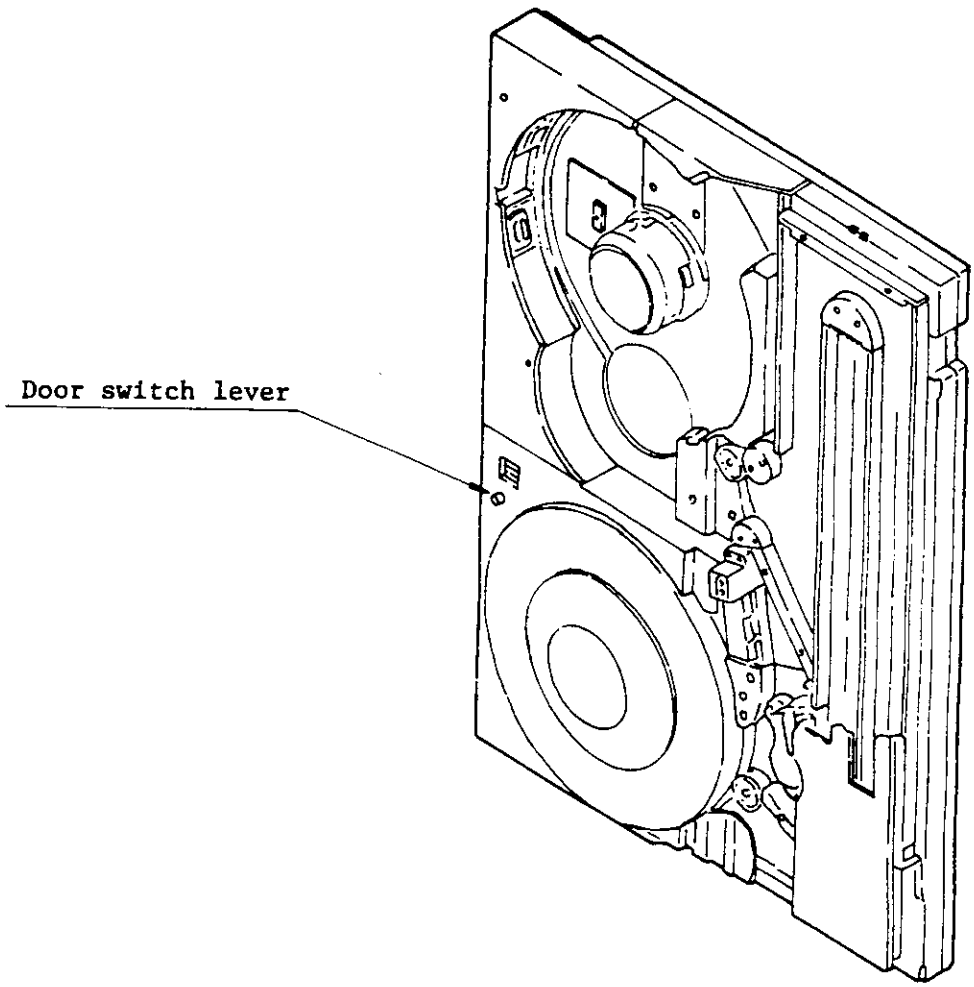
A0420	Error Codes 35, 40, and 65



Note:

See A0020, Figure A.1 pin location on the MTU motherboard.

A0420	Error Code 35, 40, and 65



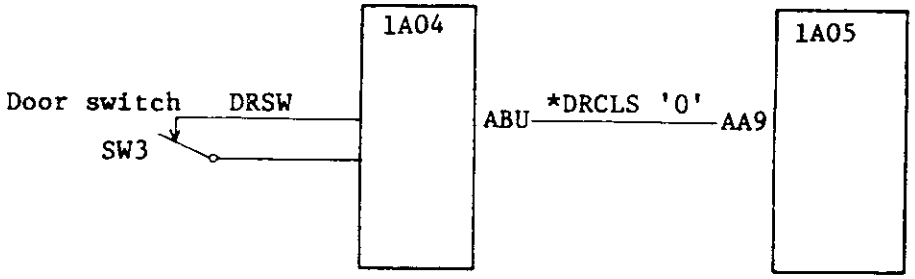
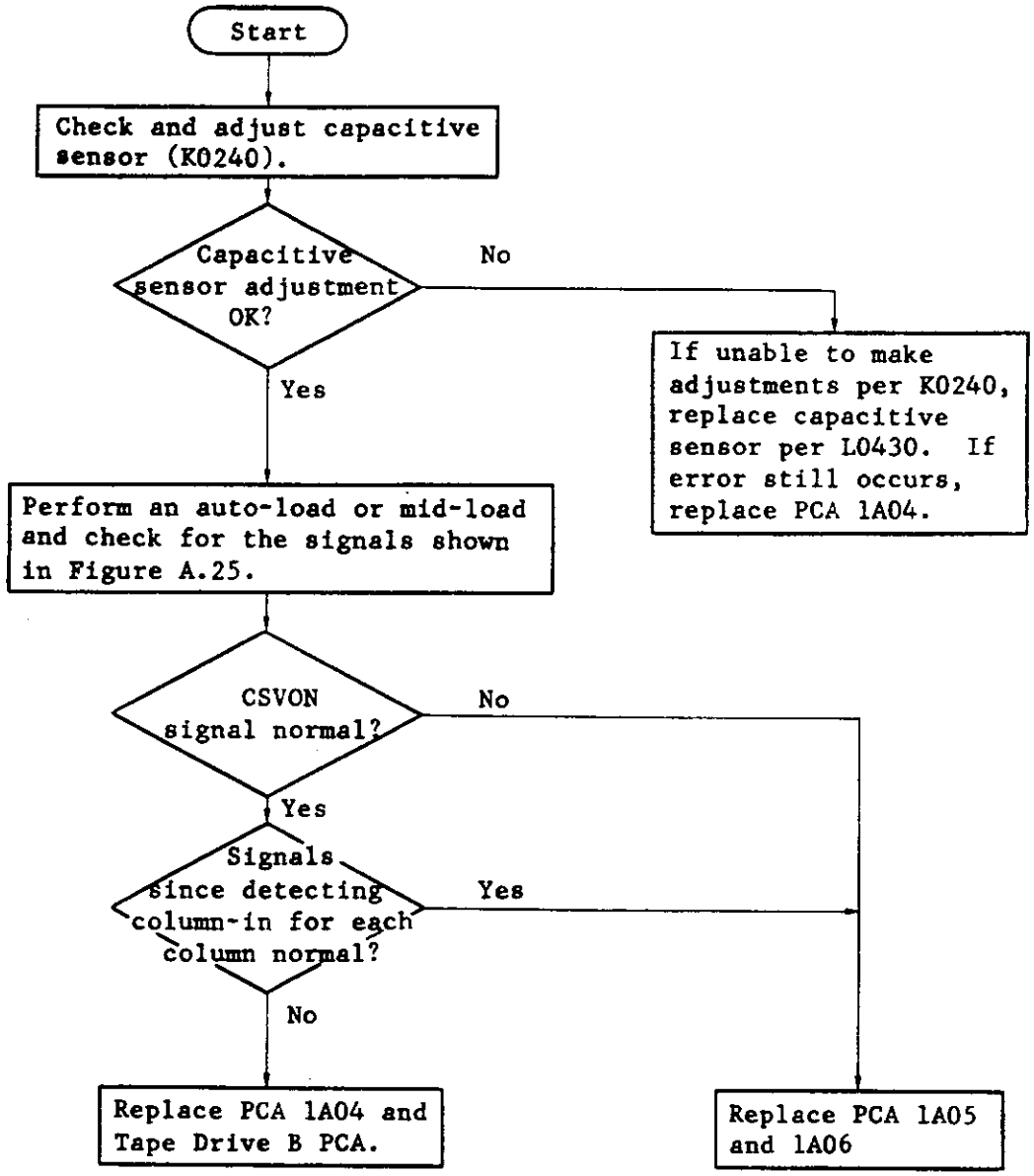
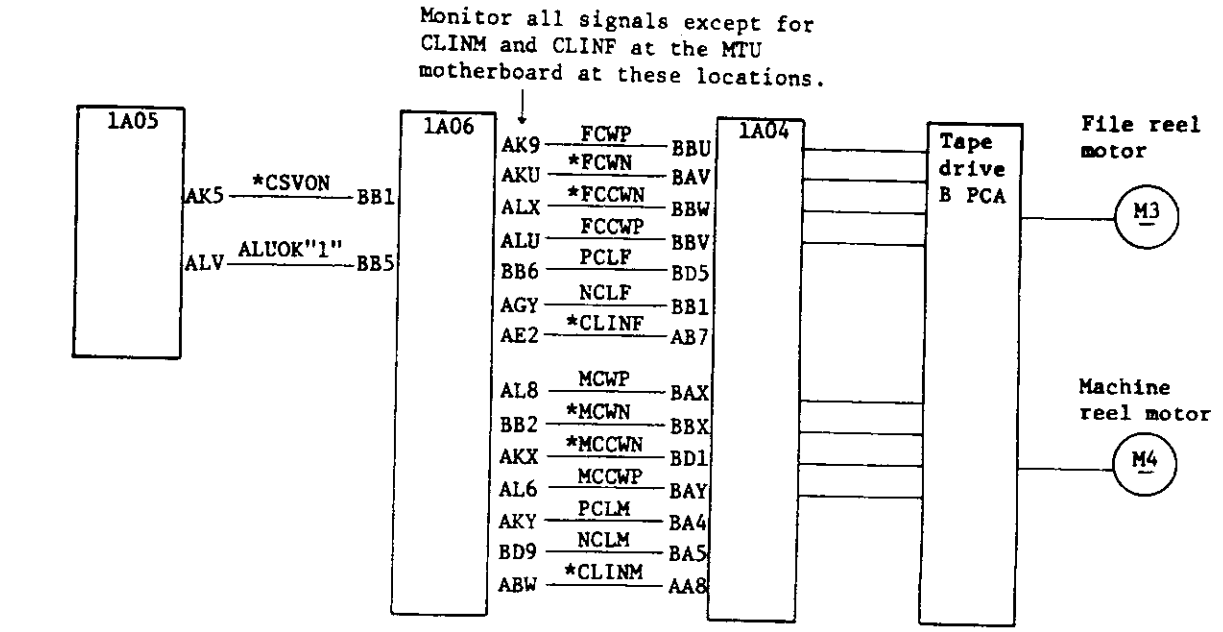


Figure A.24 Troubleshooting Error Codes 35, 40, and 65

A0430	Error Codes 56 and 57



Note: An error results if the tape loop passes the warning detection hole after the column-in signal (tape in vacuum column) has been detected during loading.



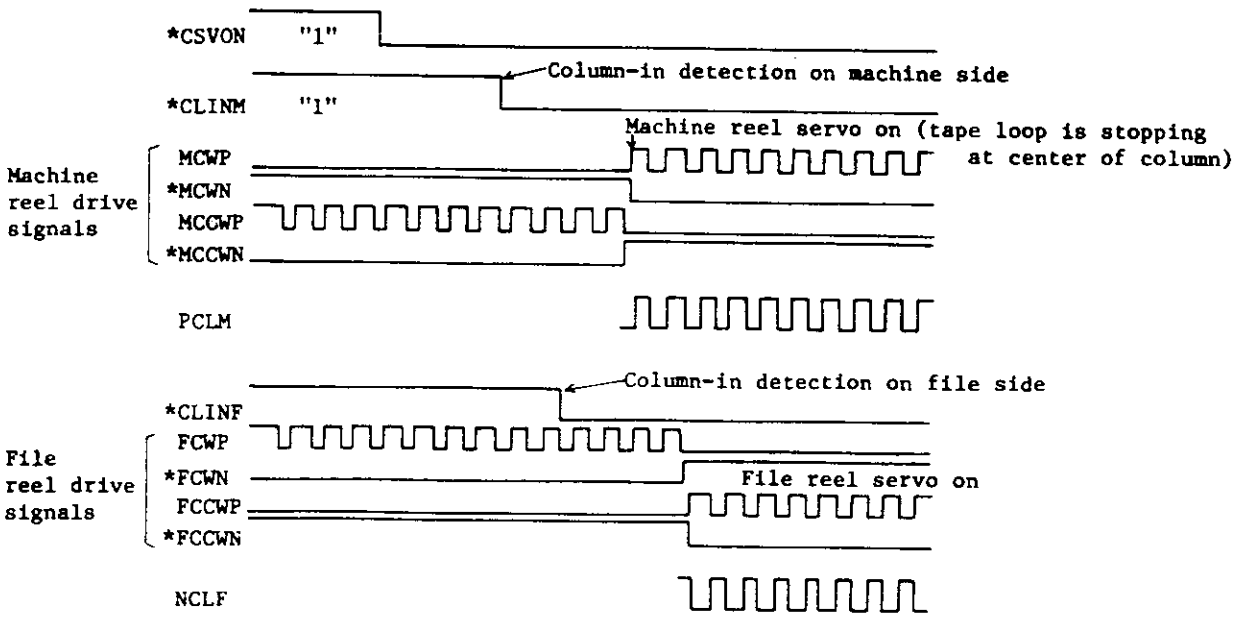
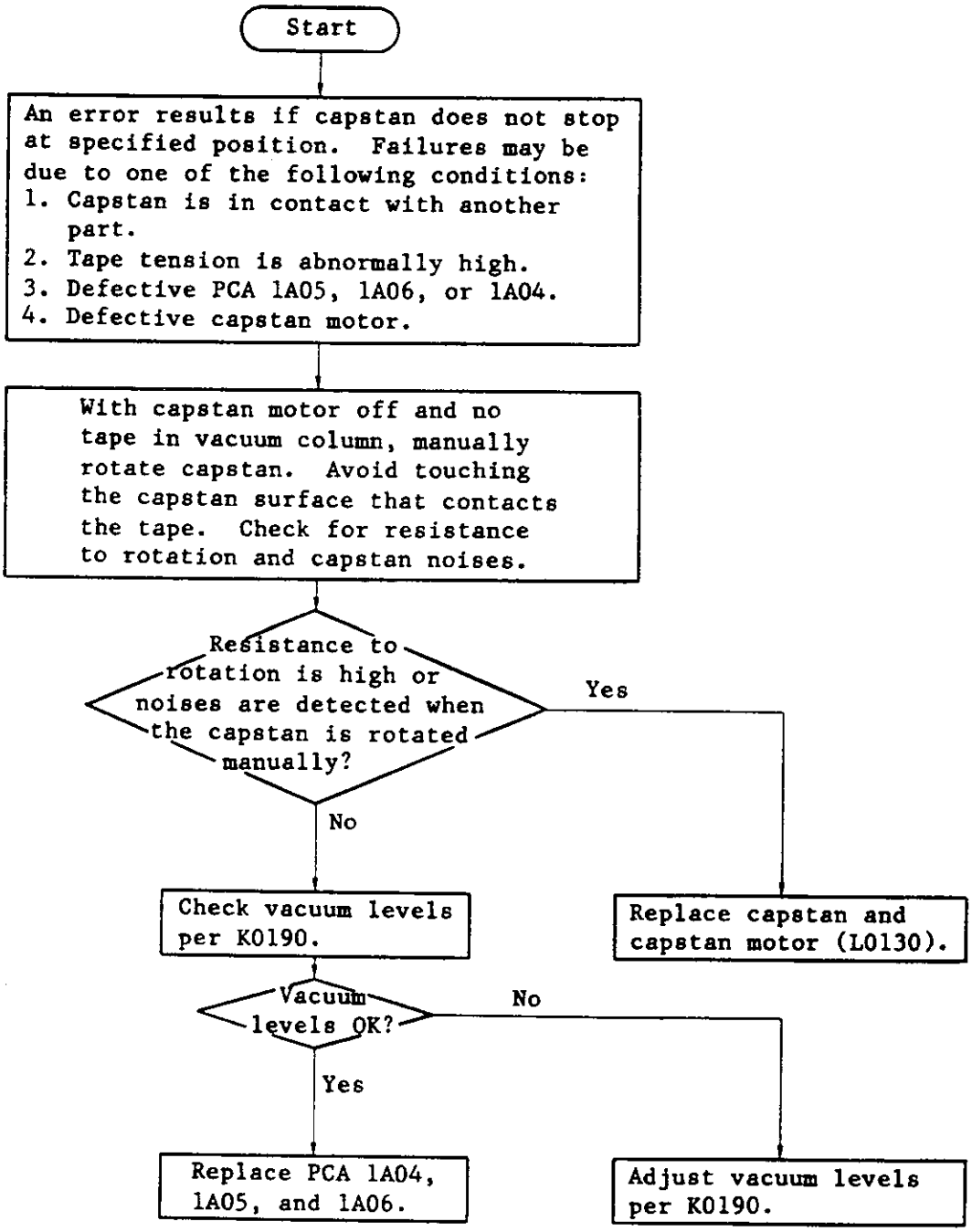
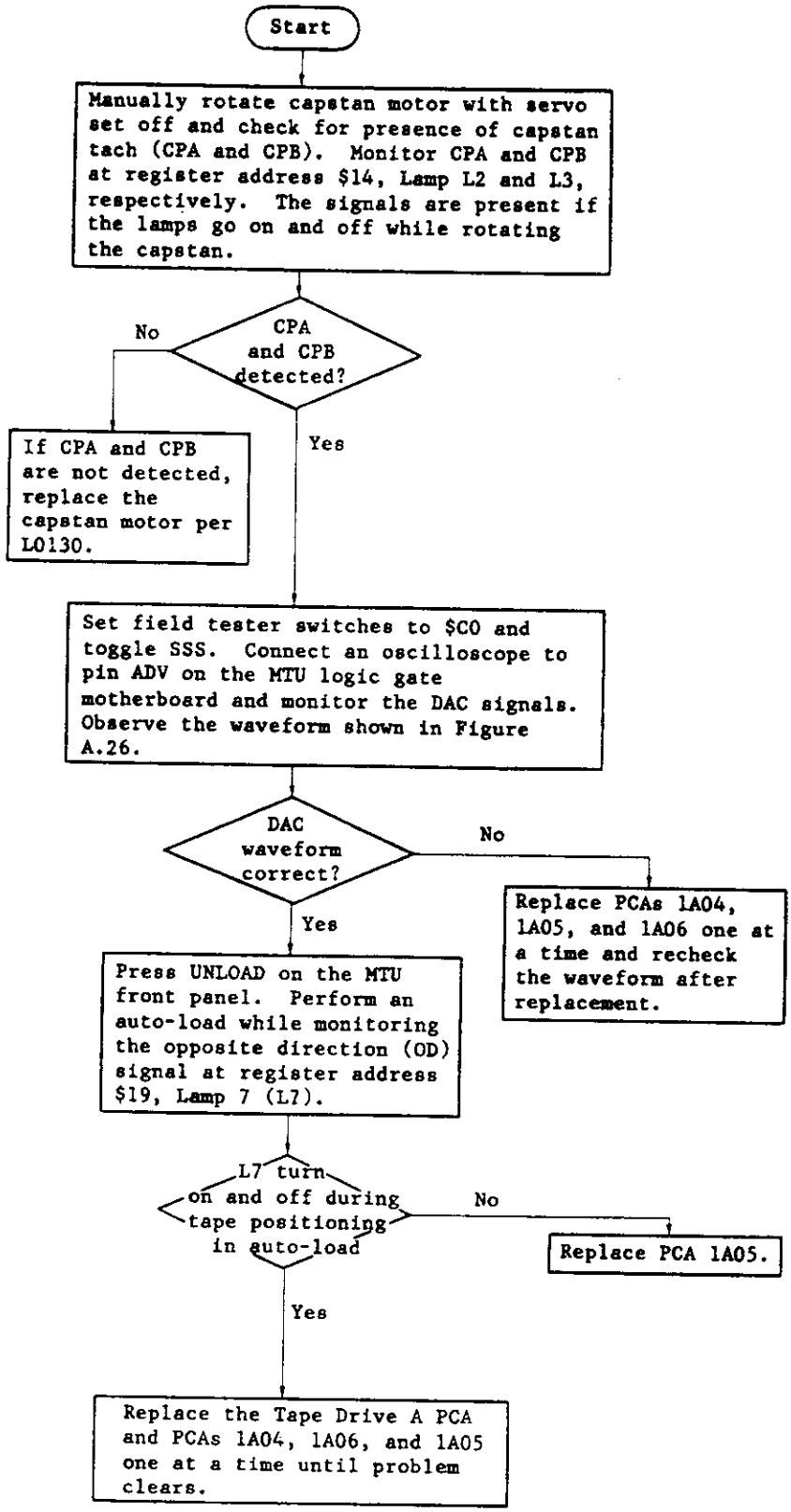


Figure A.25 Troubleshooting Error Codes 56 and 57

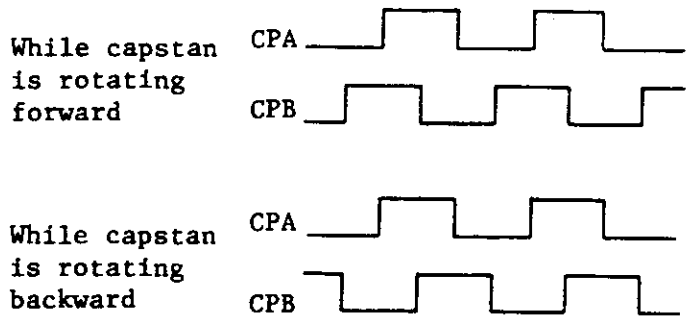
A0450	Error Codes 74 and 75

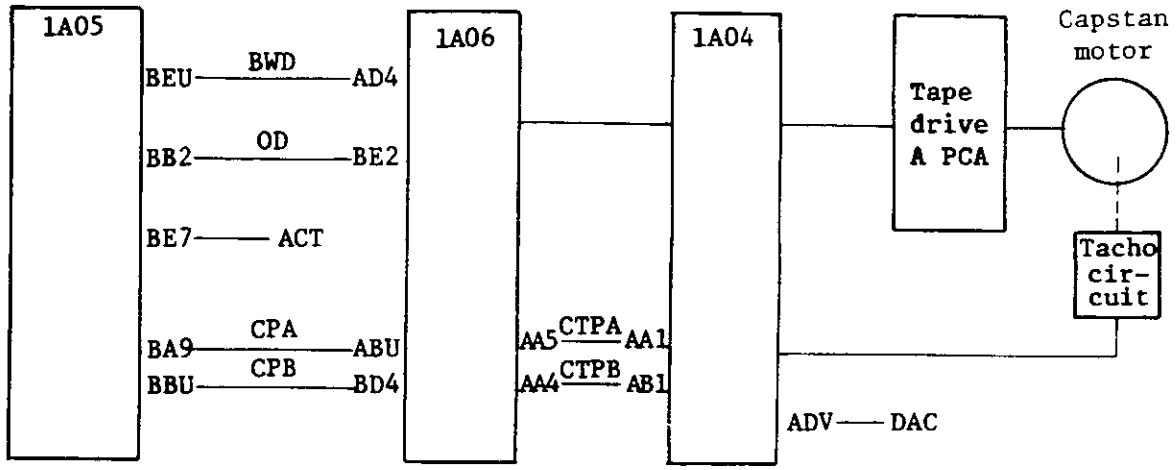


A0500	Error Codes 72 and 73



Note: See A0020, Figure A.1 for ADV pin location on the MTU motherboard.





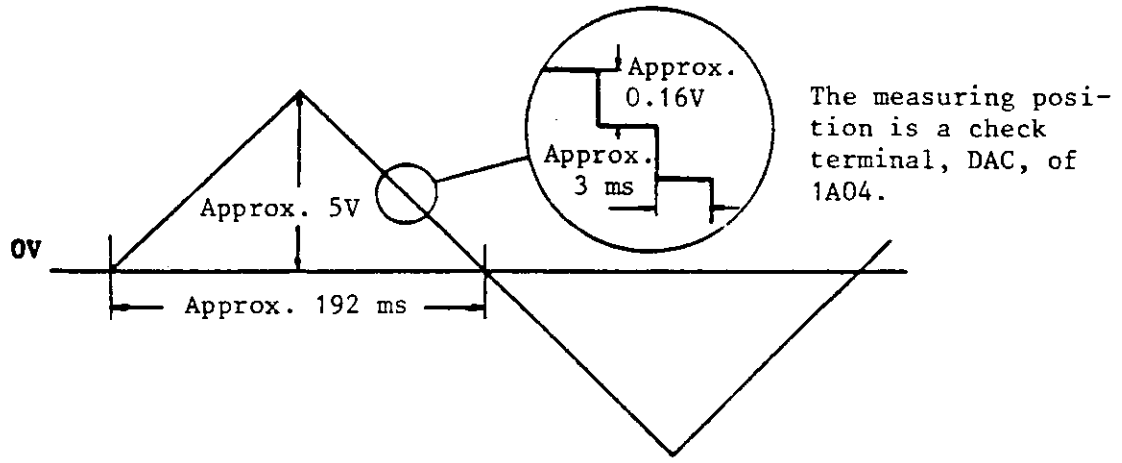
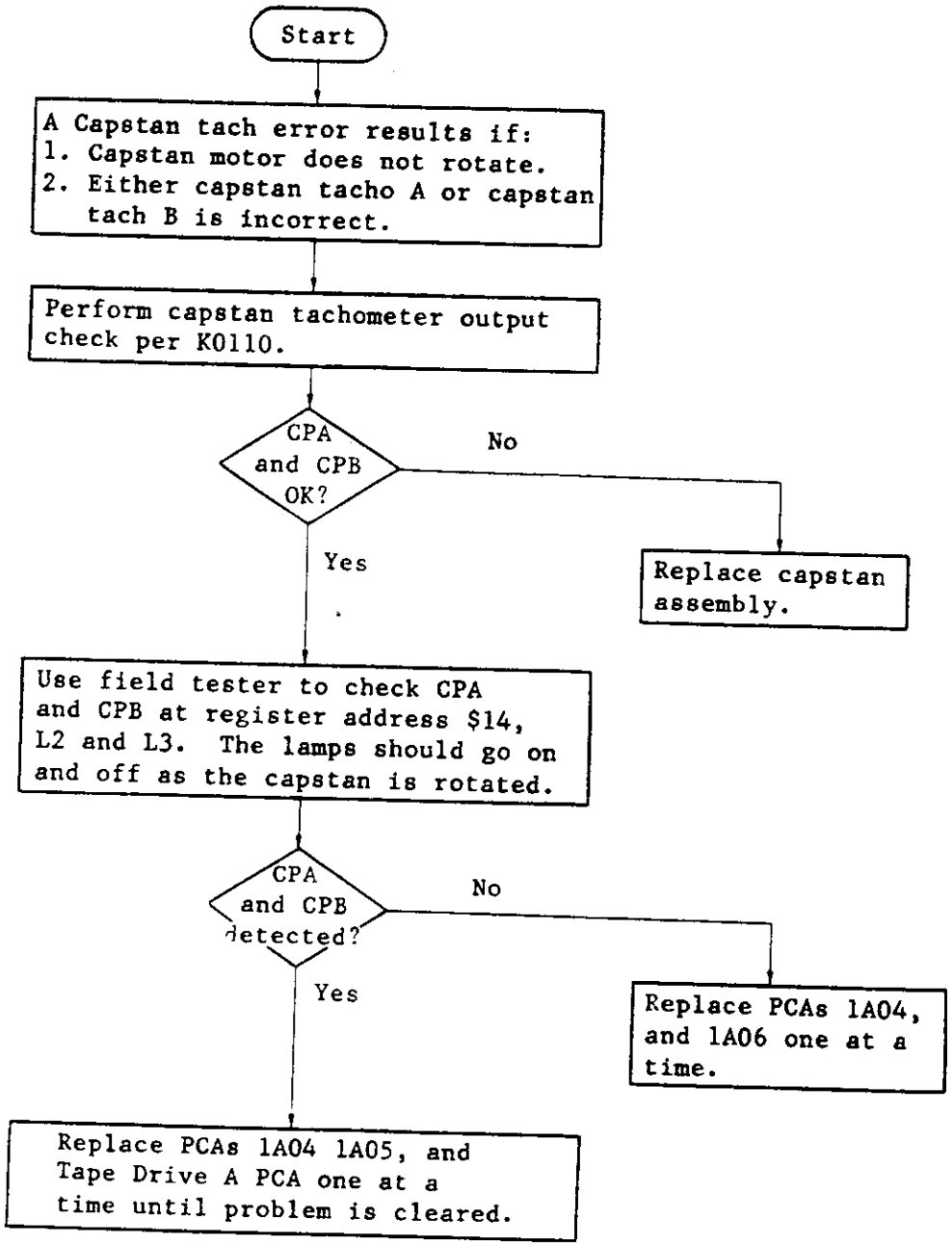


Figure A.26 Troubleshooting Error Codes 72 and 73

A0550	Error Codes 70 and 71

Capstan Tacho Error



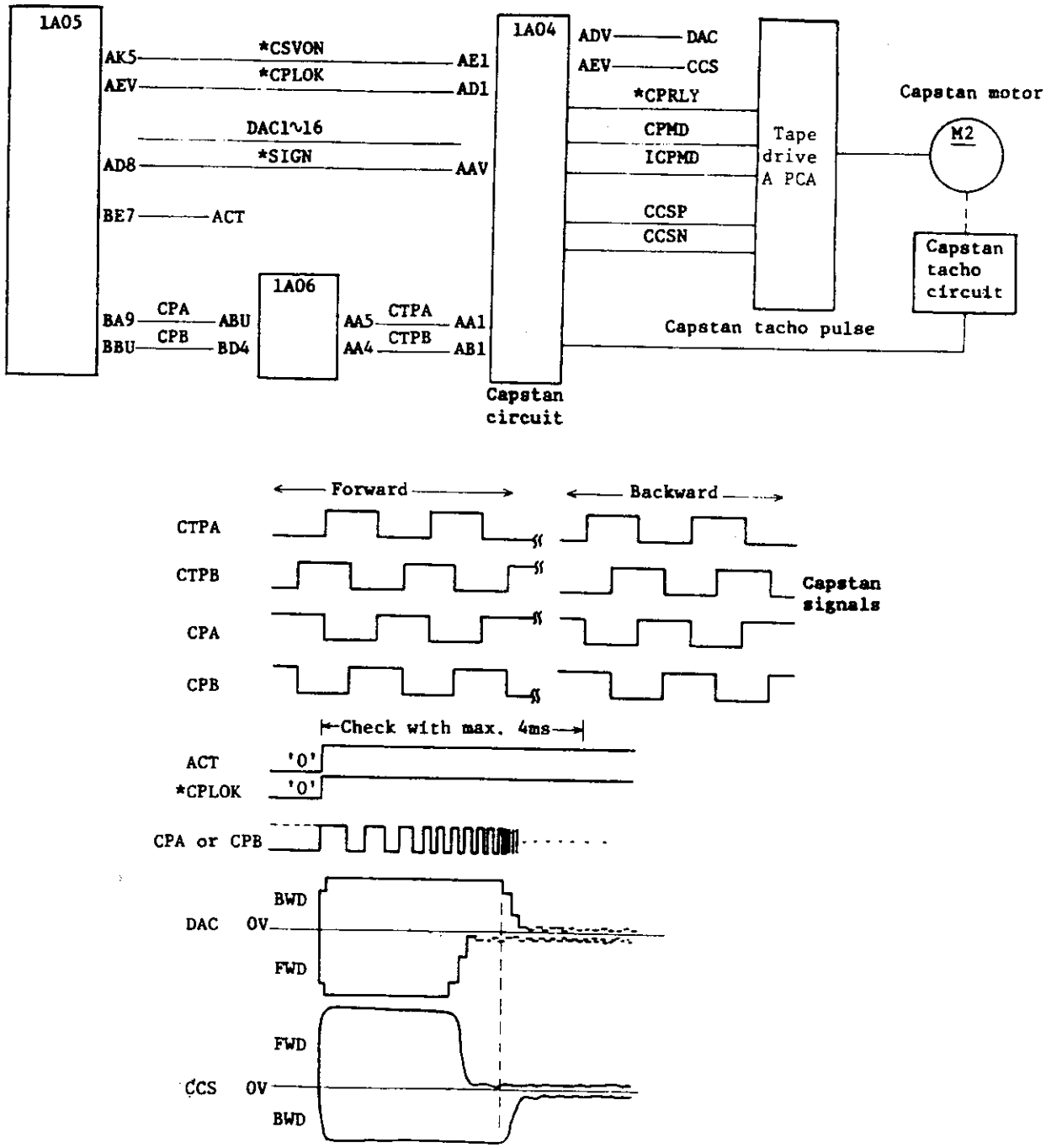
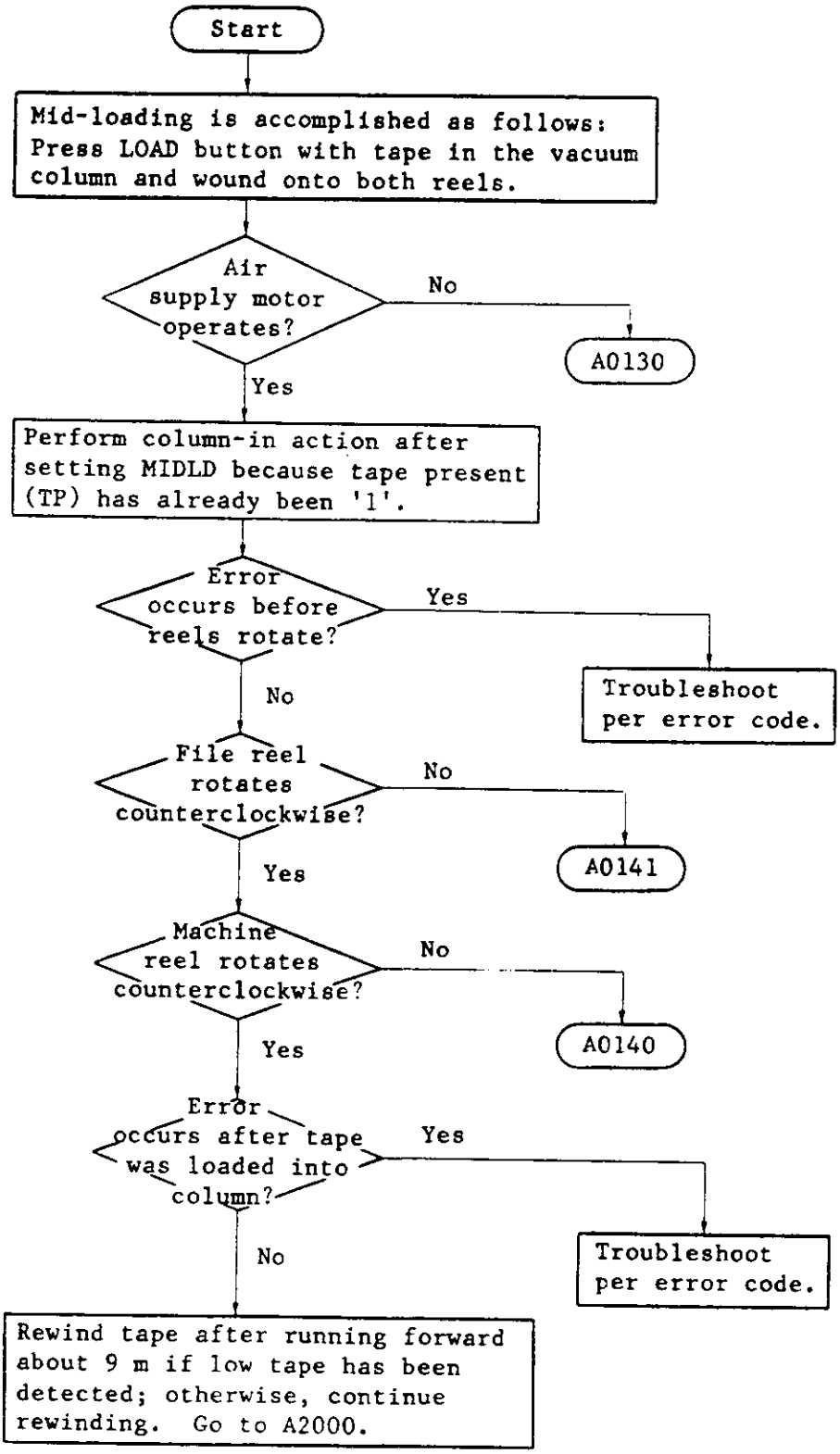
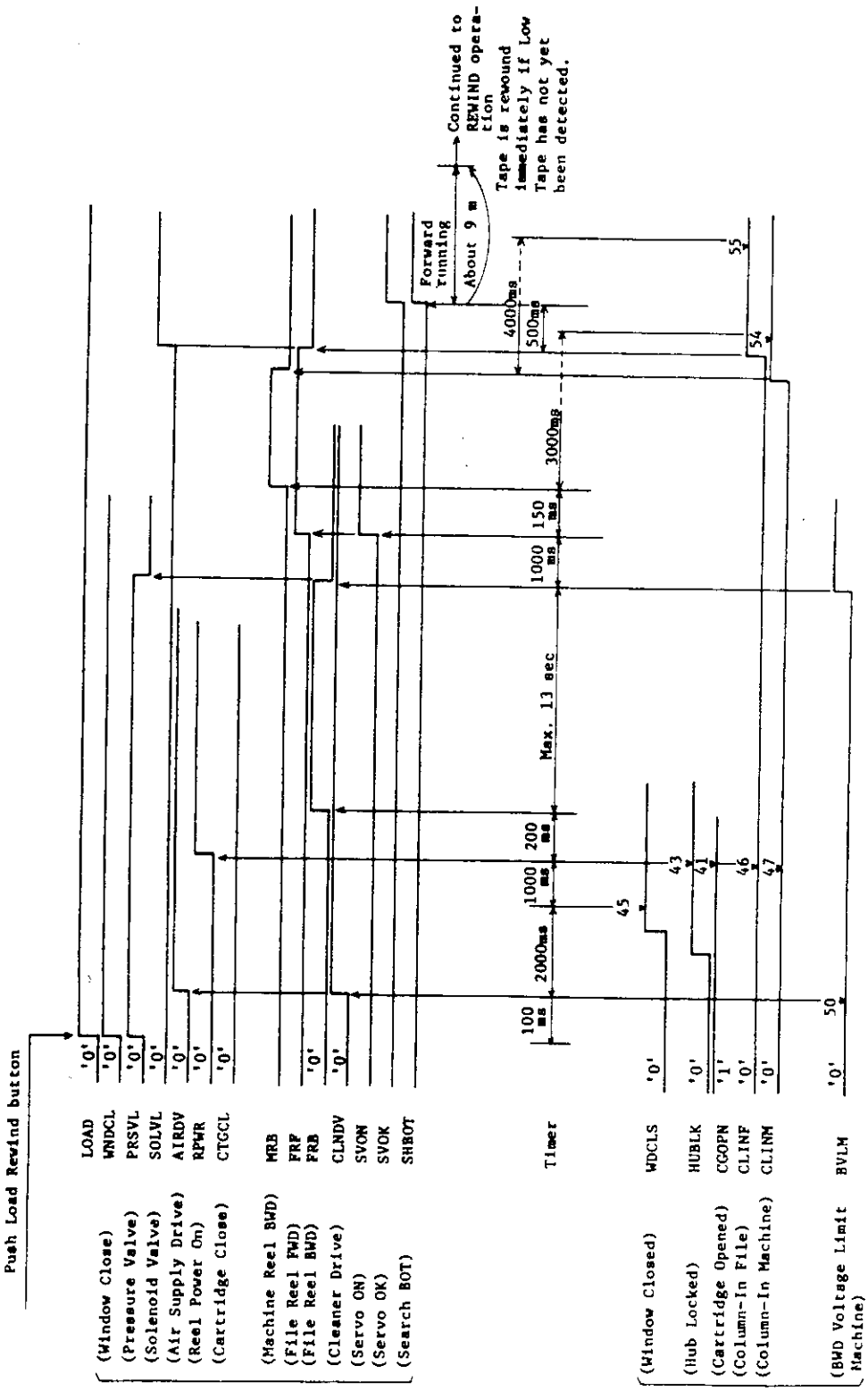


Figure A.27 Capstan circuit and signals

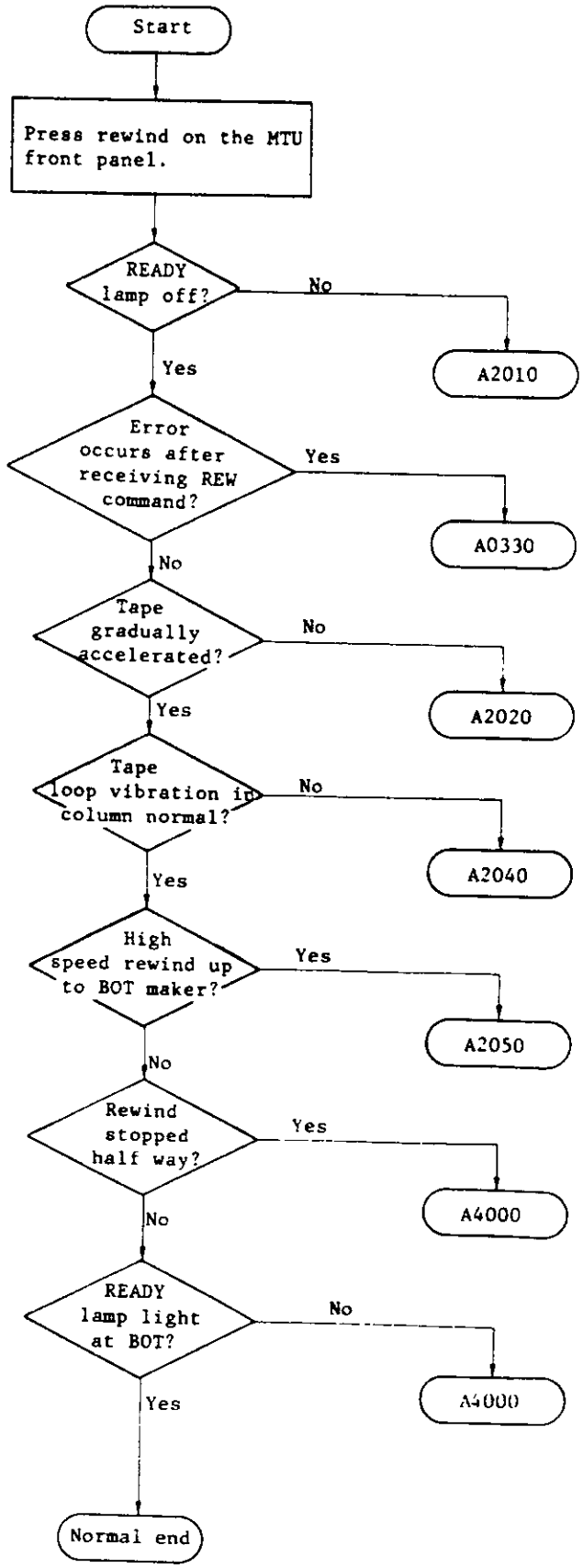
A1000	Mid-loading Troubleshooting



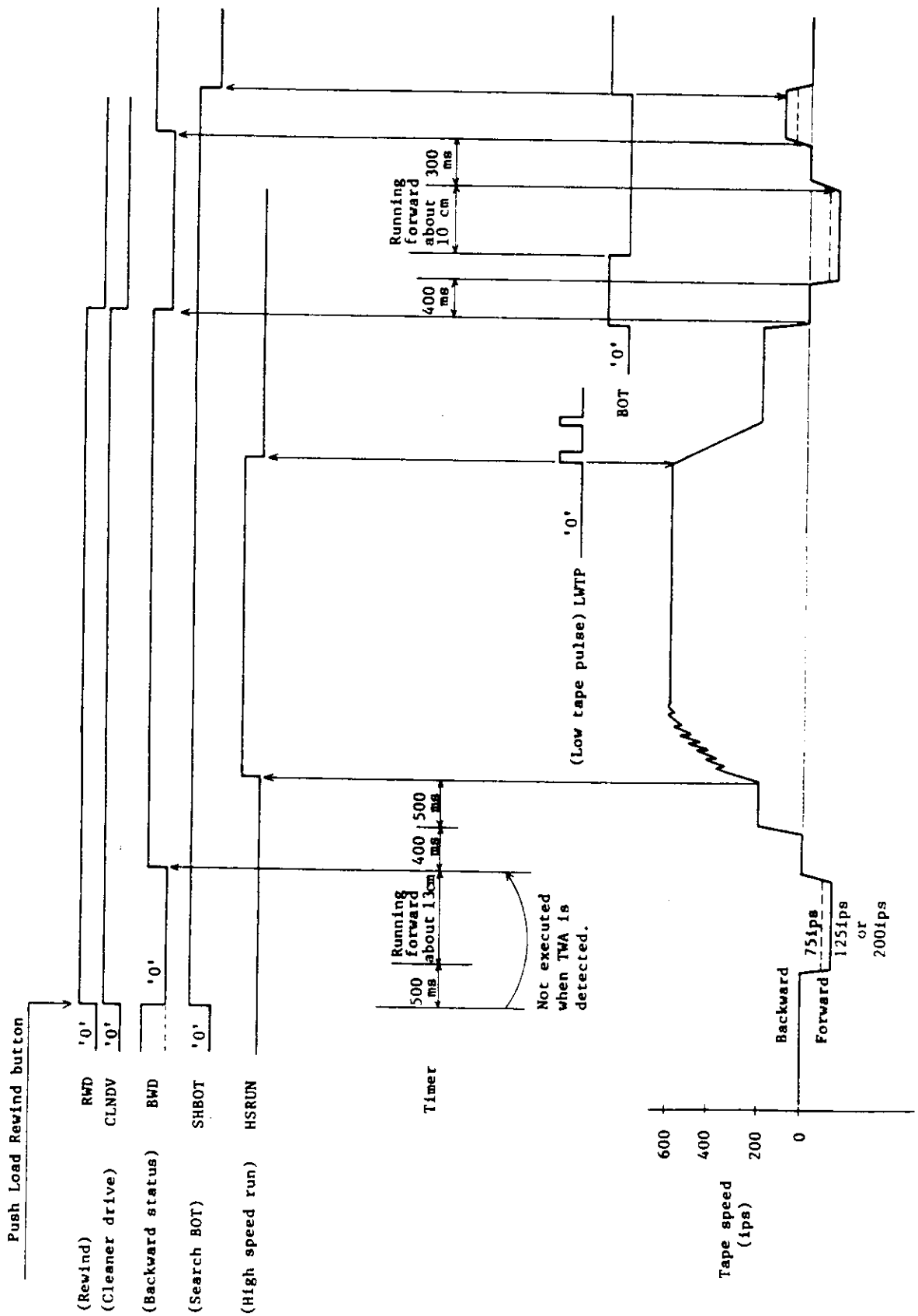
A1001	Mid-loading Timing Chart



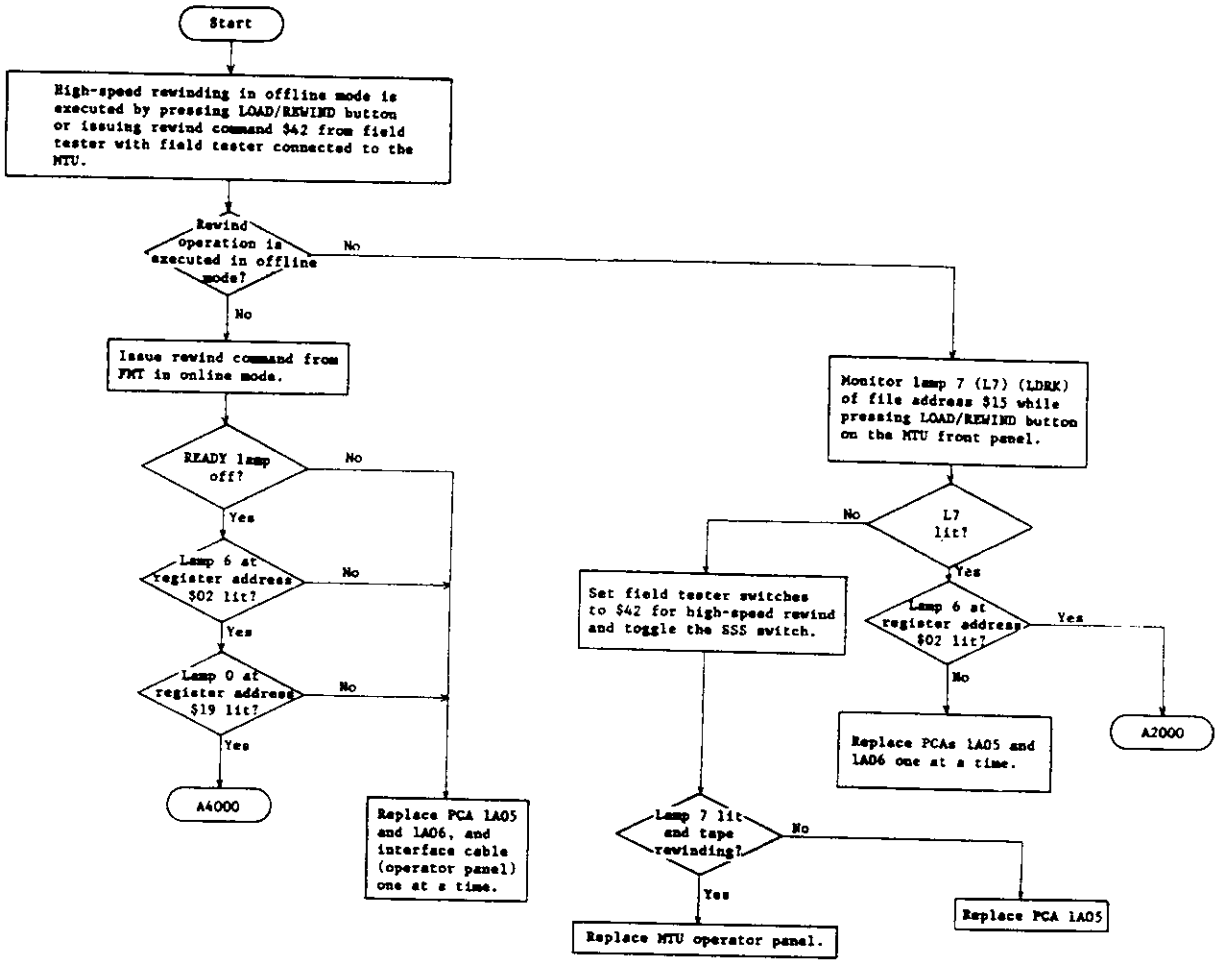
Note: The marks "▼" indicate the timings when the program checks the logical level of sensors during mid-loading. The hexadecimal number in upper of the mark "▼" means Error code which is set to ER register.


Start
Press rewind on the MTU front panel.
READY lamp off?
No
A2010
Yes
Error occurs after receiving REW command?
Yes
A0330
No
Tape gradually accelerated?
No
A2020
Yes
Tape loop vibration in column normal?
No
A2040
Yes
High speed rewind up to BOT maker?
Yes
A2050
No
Rewind stopped half way?
Yes
A4000
No
READY lamp light at BOT?
No
A4000
Yes
Normal end

A2001	Rewind Timing Chart

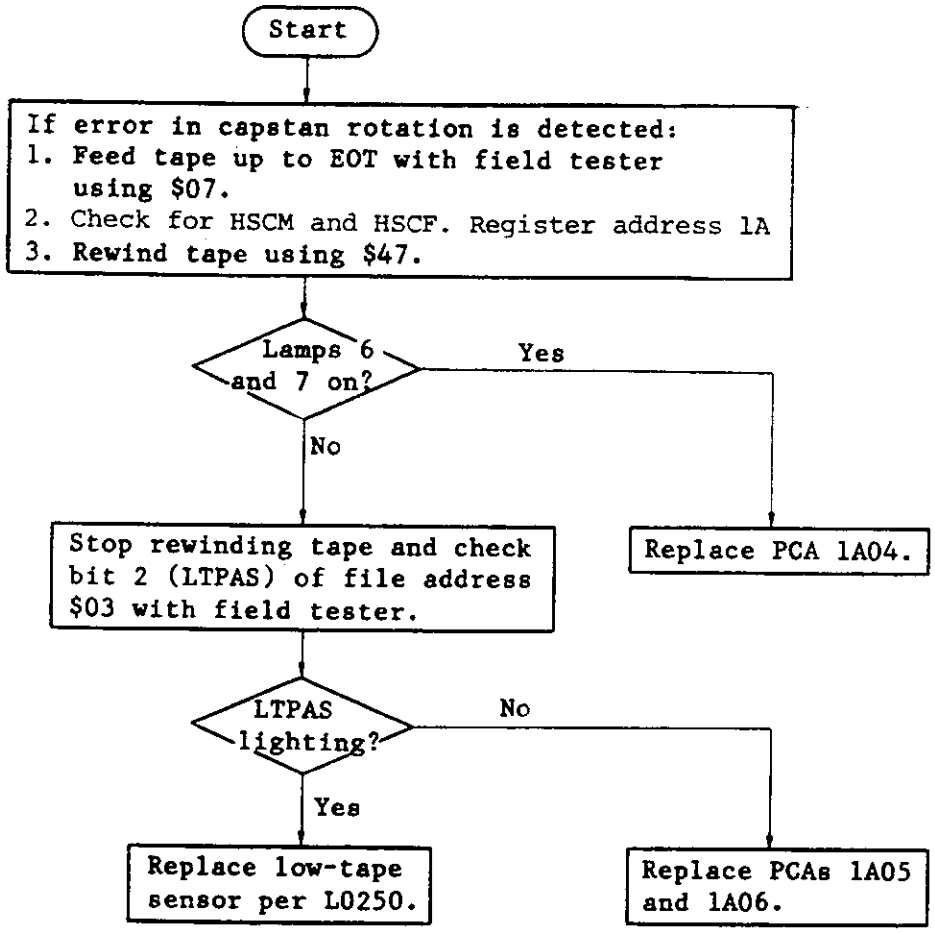


A2010	Rewind Trouble



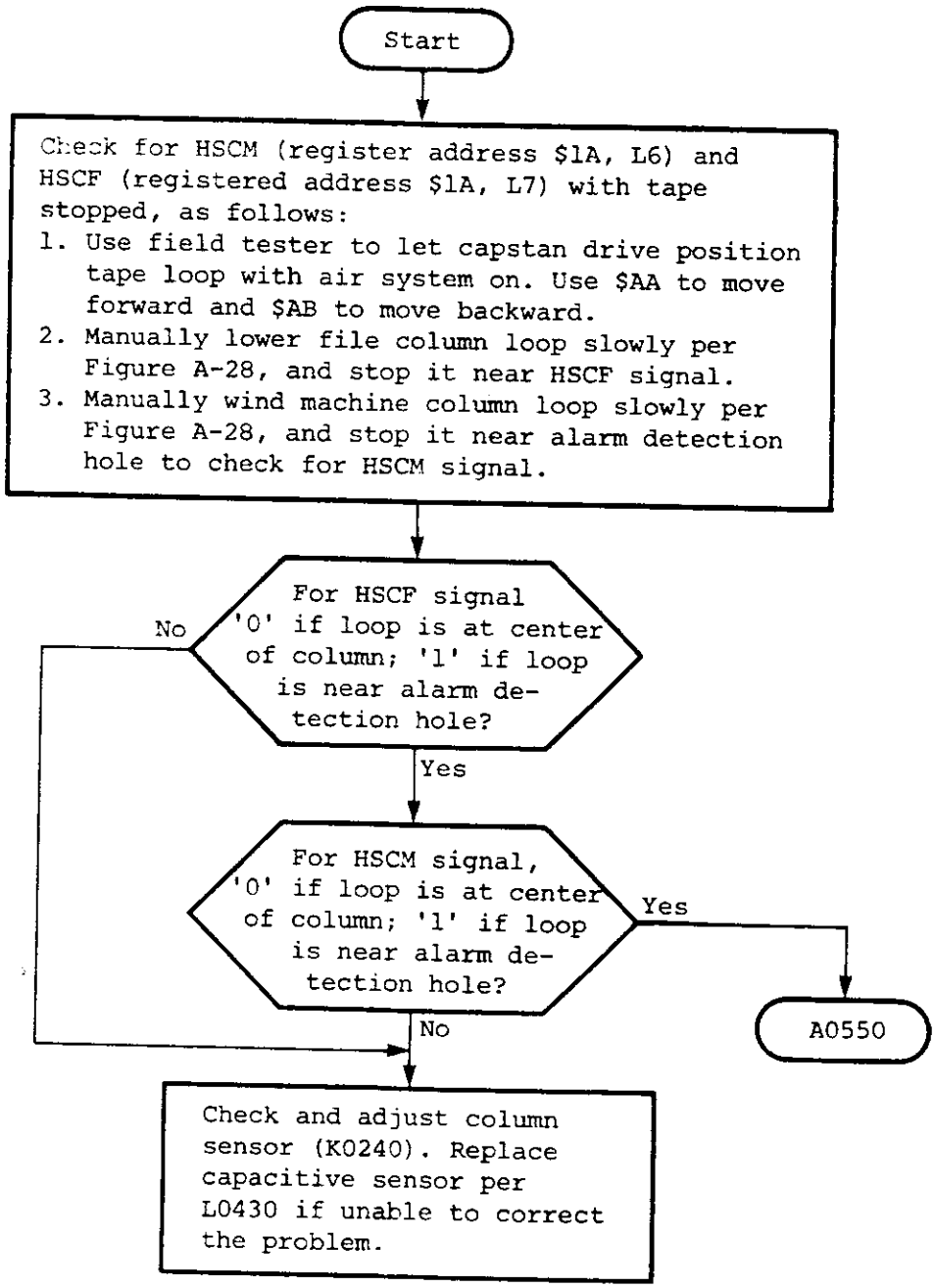
A2020	Capstan Rotation

Capstan Rotation does not Accelerate Gradually



Notes: If tape warning area (TWA) signal has not been detected, tape is wound forward about 13 cm at constant speed, then runs backward for 0.5 seconds at 200 ips. Tape speed then increases to 600 ips or 500 ips. However, forward running will not occur if TWA has been detected.

Tape Loop Trouble in Columns (200 to 600 ips, and 600 to 200 ips)



Notes: After tape is rewound for 0.5 seconds at 200 ips, tape speed accelerates gradually by 40 ips per 100 ms if speed down signal (HSCM/HSCF) from reel controller does not become '1'. Speed decelerates gradually by 40 ips per 100 ms if speed down signal becomes '1'. If low tape marker is detected, then tape speed decelerates gradually at intervals of 100 ms.

A02040	Tape Loop in Columns

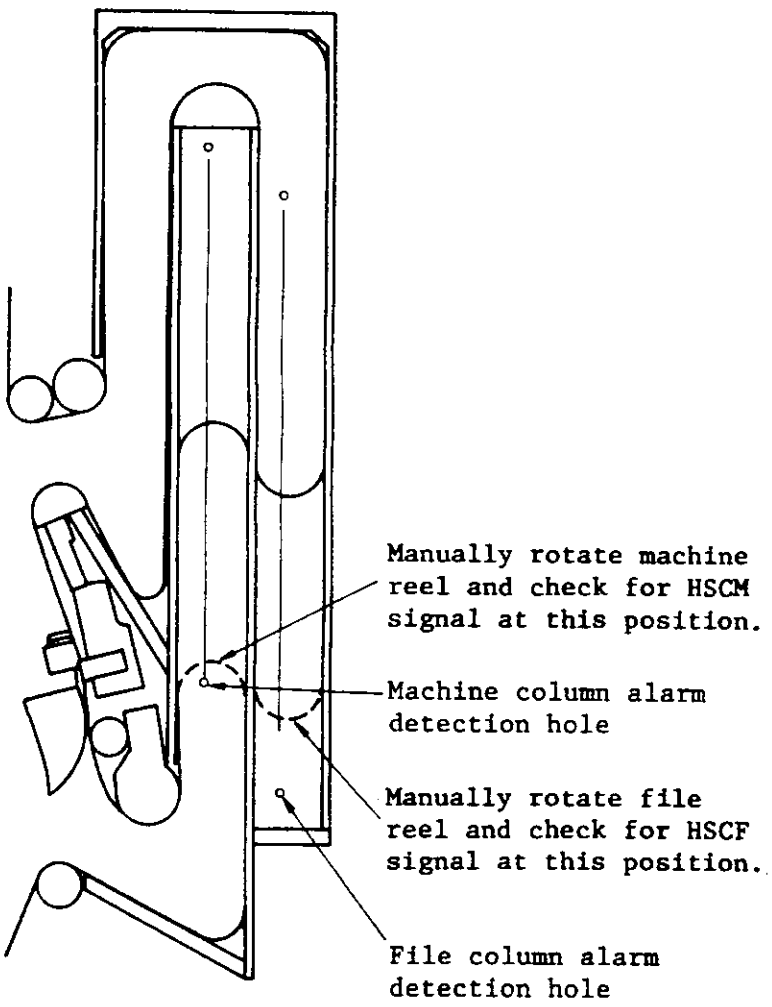
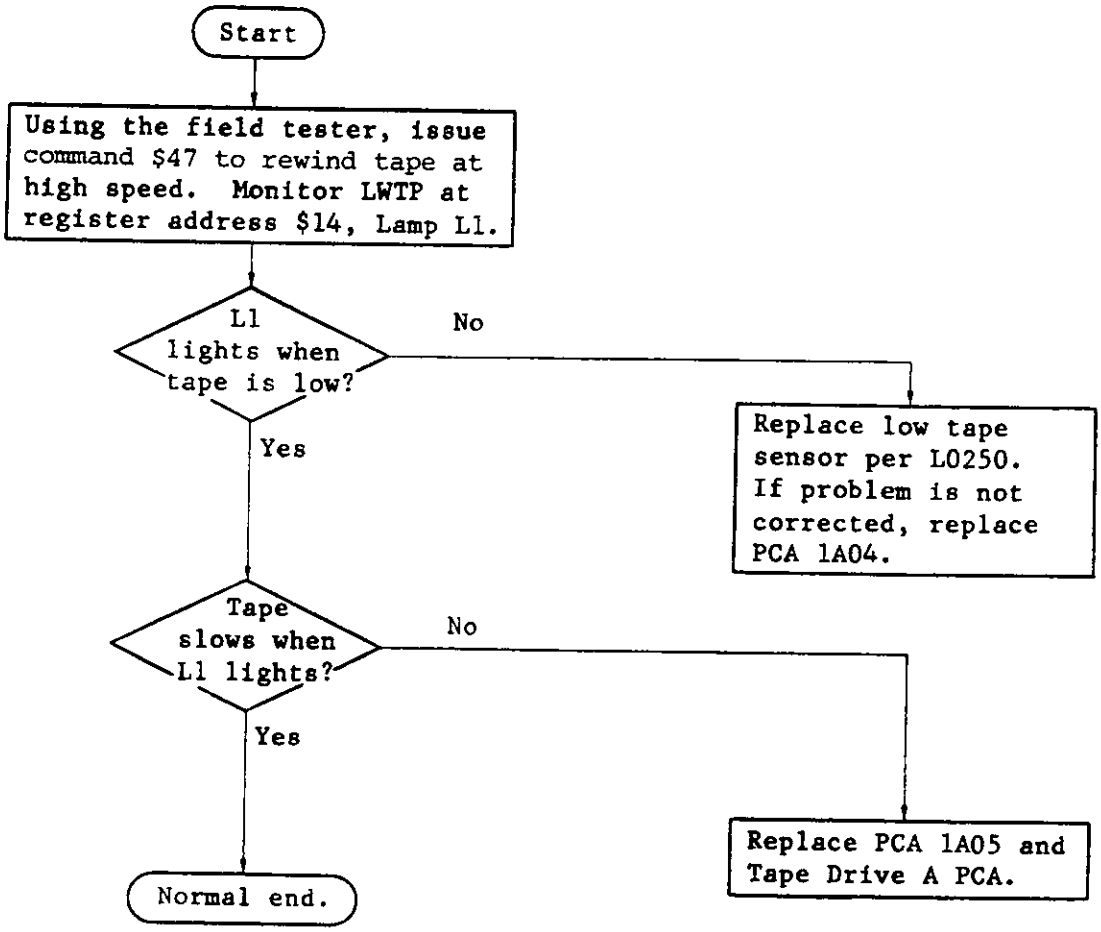


Figure A.28 Tape loop in columns

A2050	Rewinding at High Speed to BOT

Tape is Rewound at High Speed Until the BOT



Notes: If tape is rewound at high speed and runs low, then tape speed lowers from 600 or 500 ips to 200 ips until BOT is detected.

A2050	Rewinding at High Speed to BOT

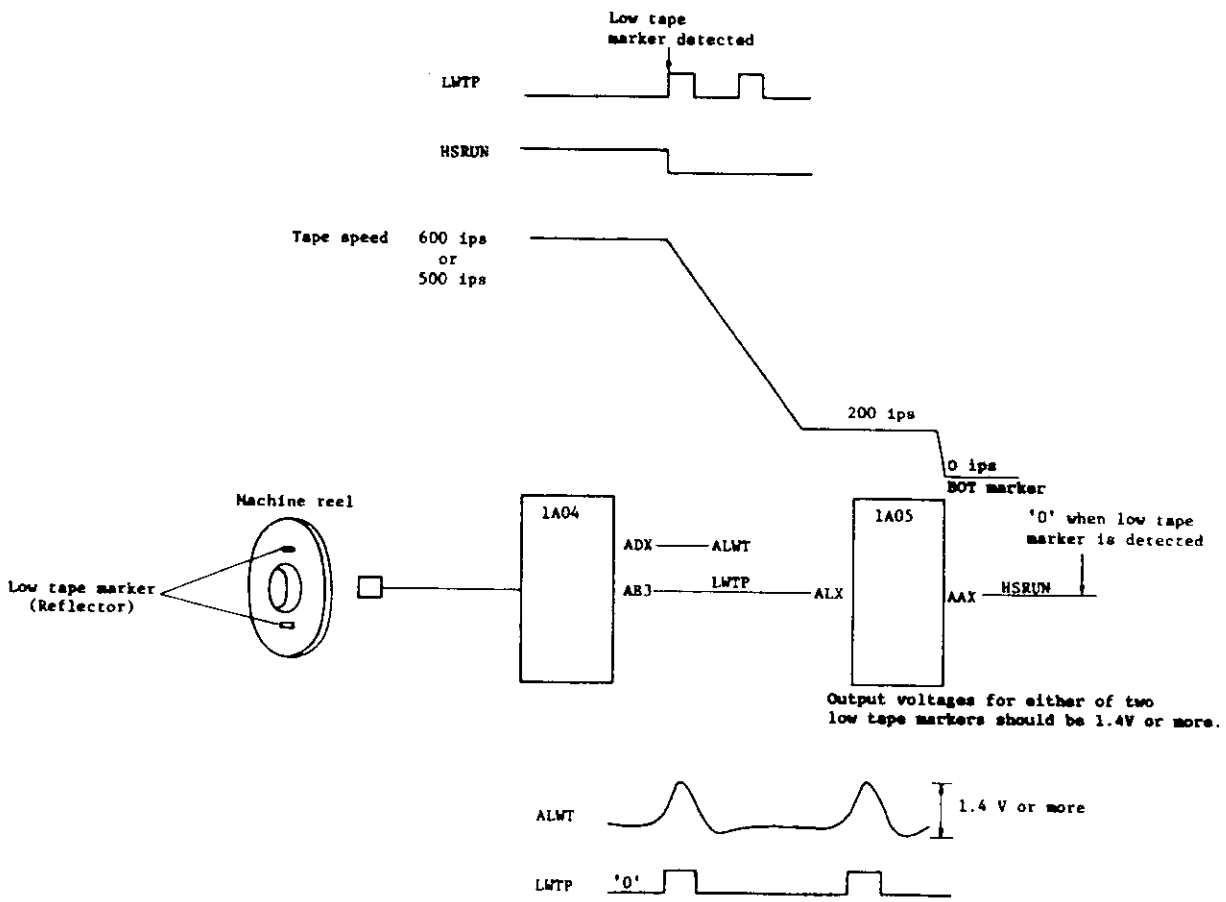
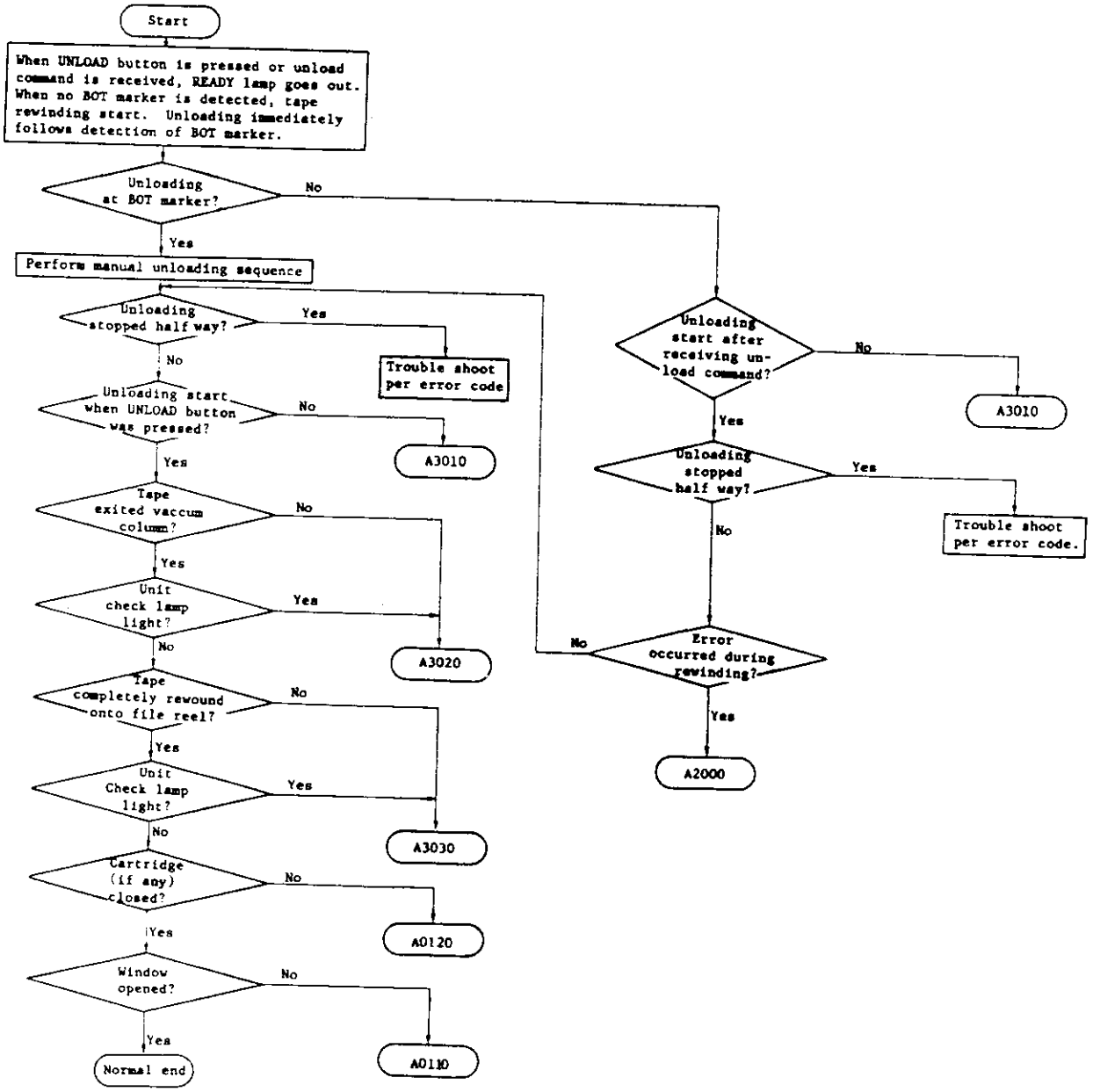
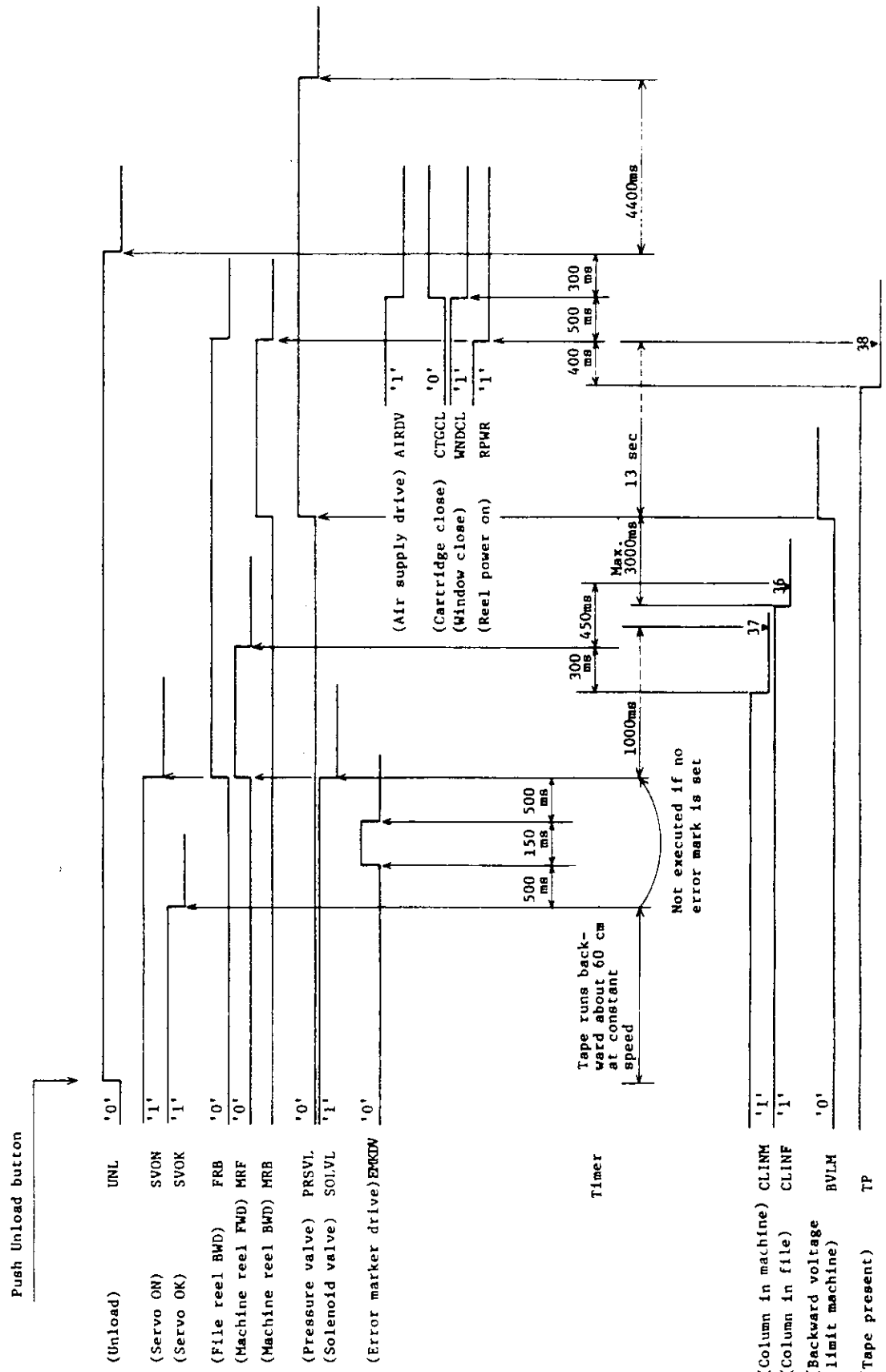


Figure A.29 Rewinding at high speed to BOT

A3000 Unloading Troubleshooting

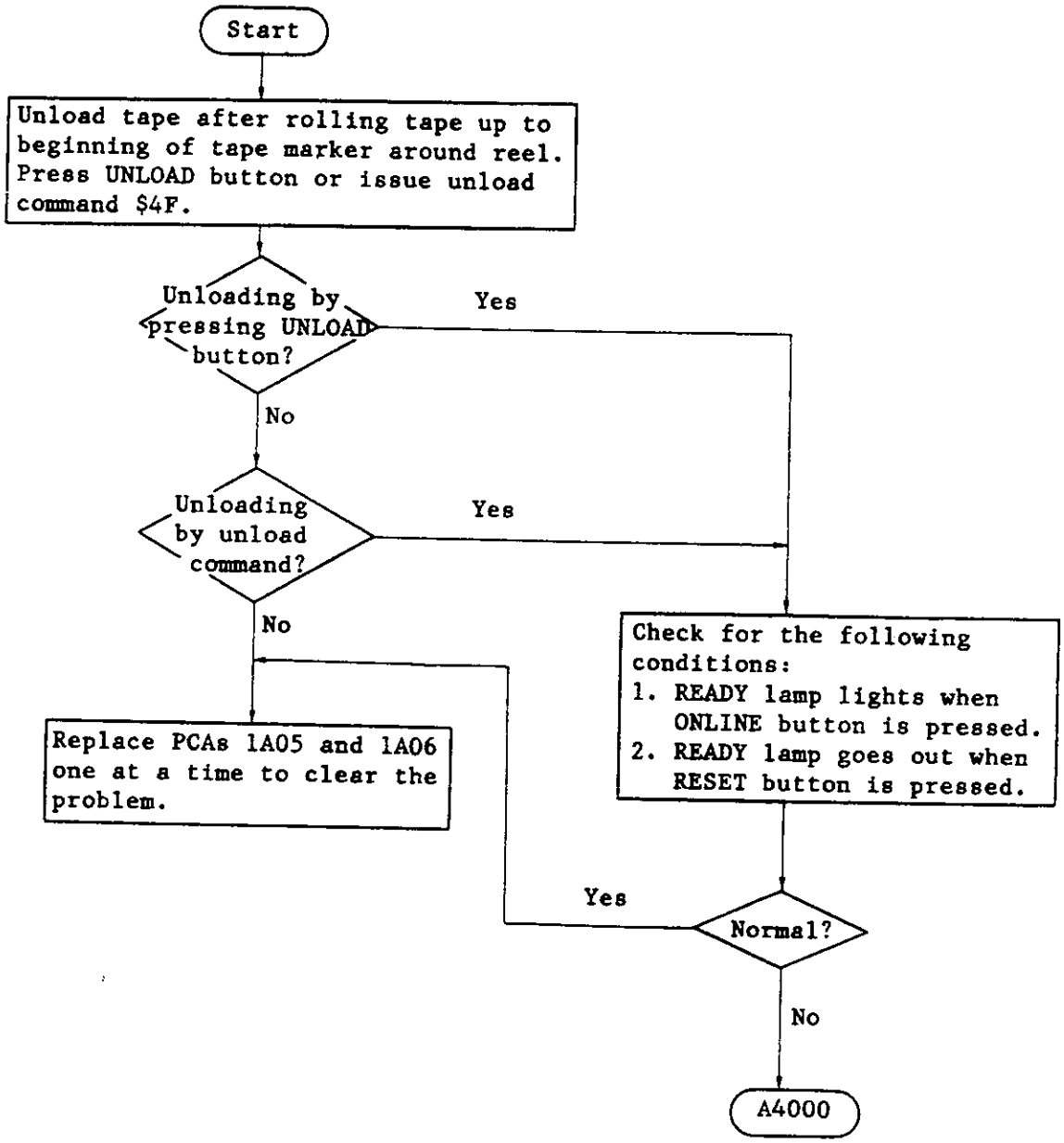


A3001	Unloading Timing Chart

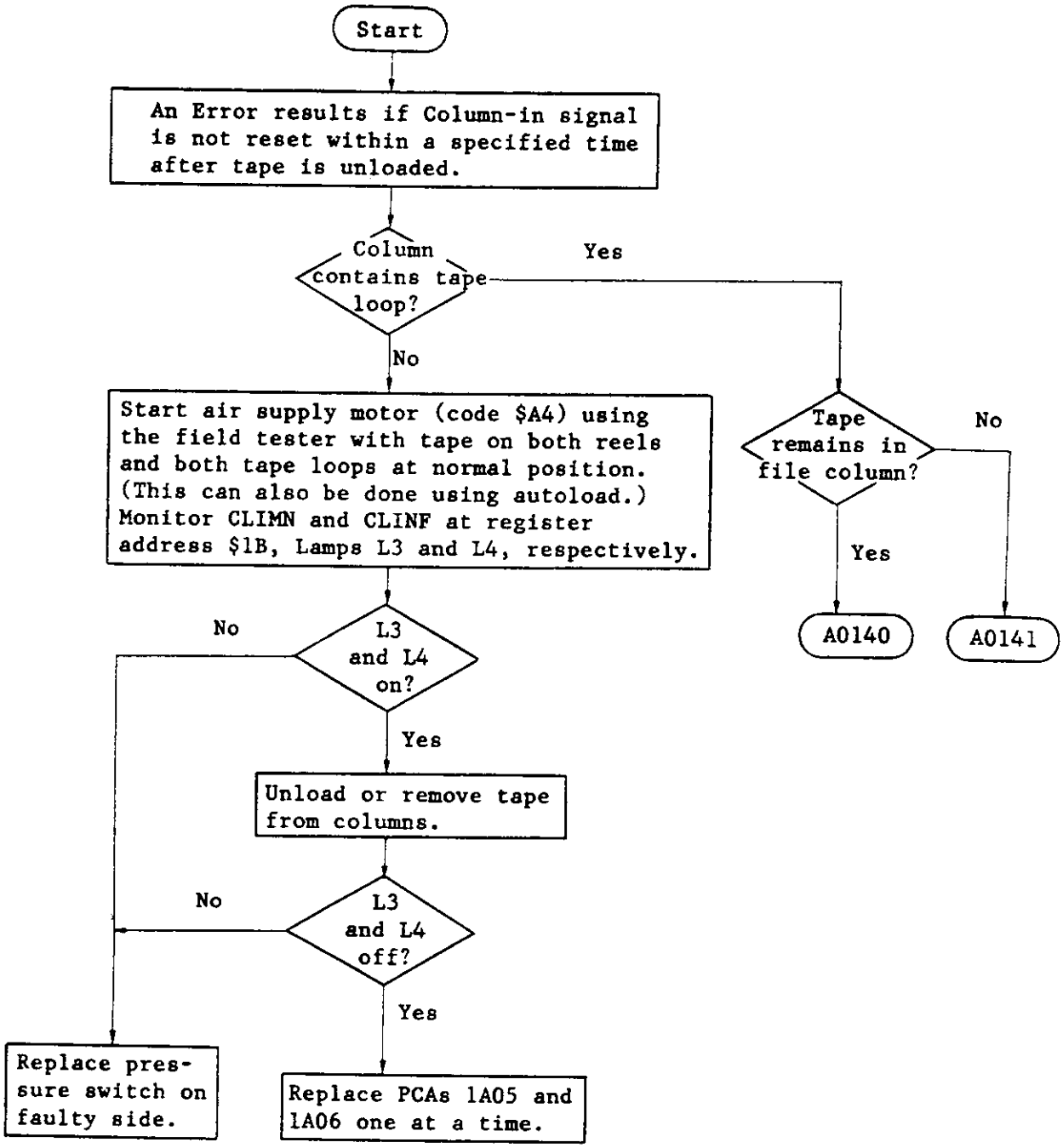


A3010	Unloading Cannot be Performed

Unloading Failure



A3020	Error Codes 36 and 37



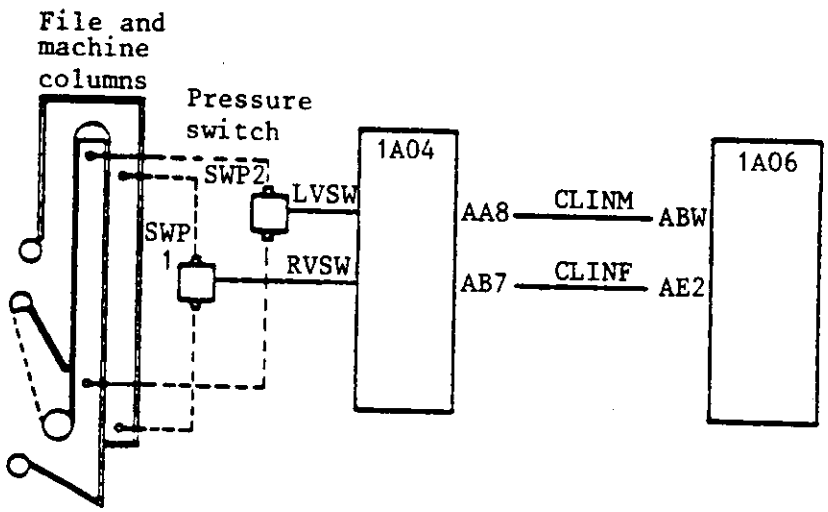
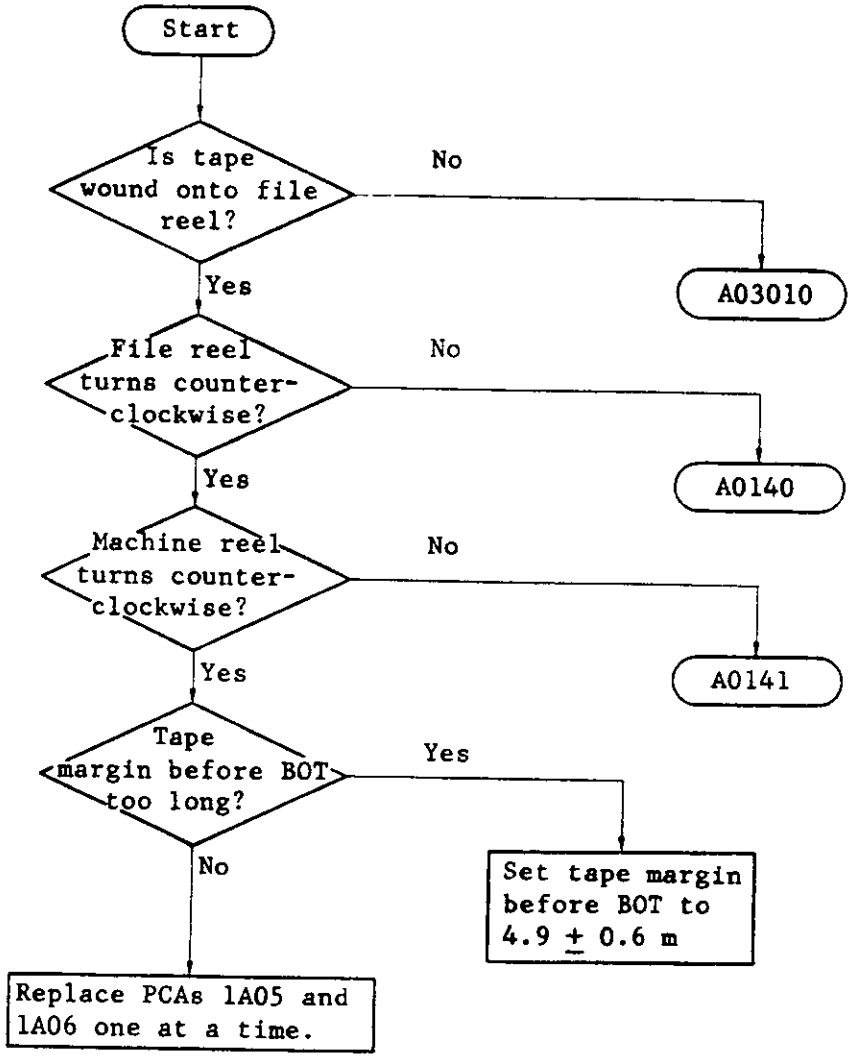
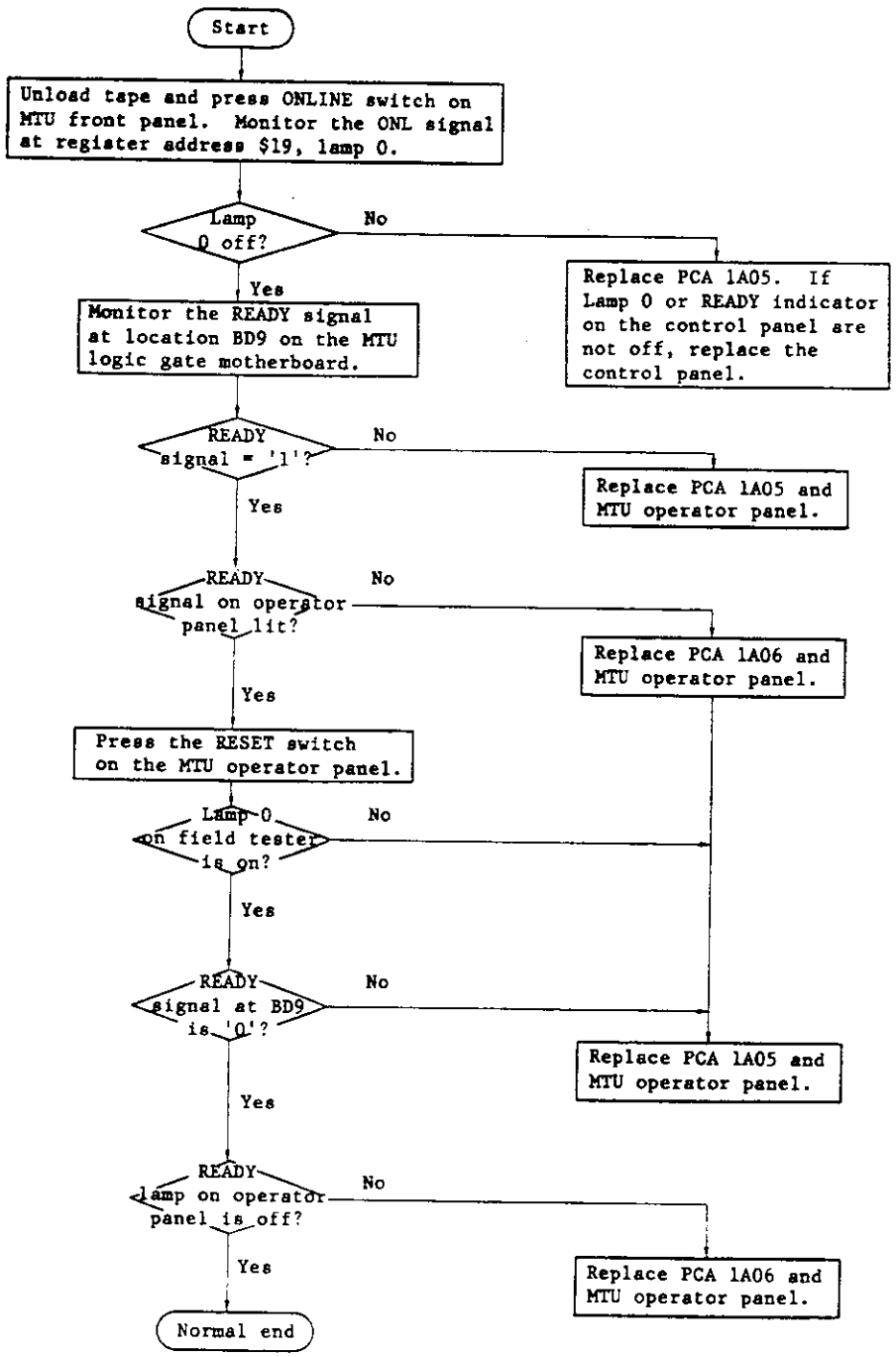


Figure A.30 Troubleshooting Error Codes 36 and 37

A3030	Error Codes 38 and 48



A4000	Ready Troubleshooting



Notes: After loading magnetic tape:

1. When ONLINE button is pressed ONL (online) is set to '0' and READY is set to '1', then READY lamp lights.

2. When RESET button is pressed, ONL is set to '1' and READY is set to '0', then READY lamp goes out.

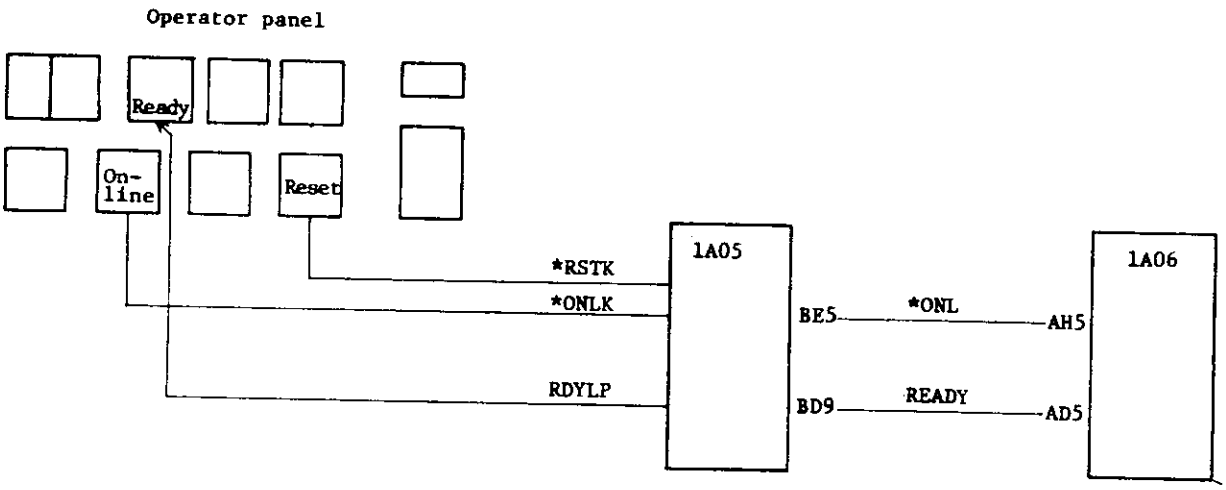
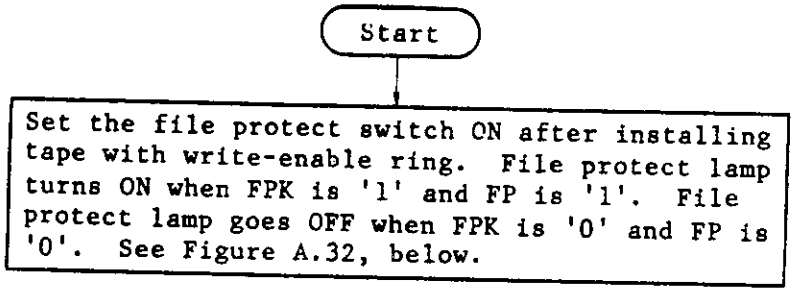


Figure A.31 Ready troubleshooting

File Protection and Lamp Trouble



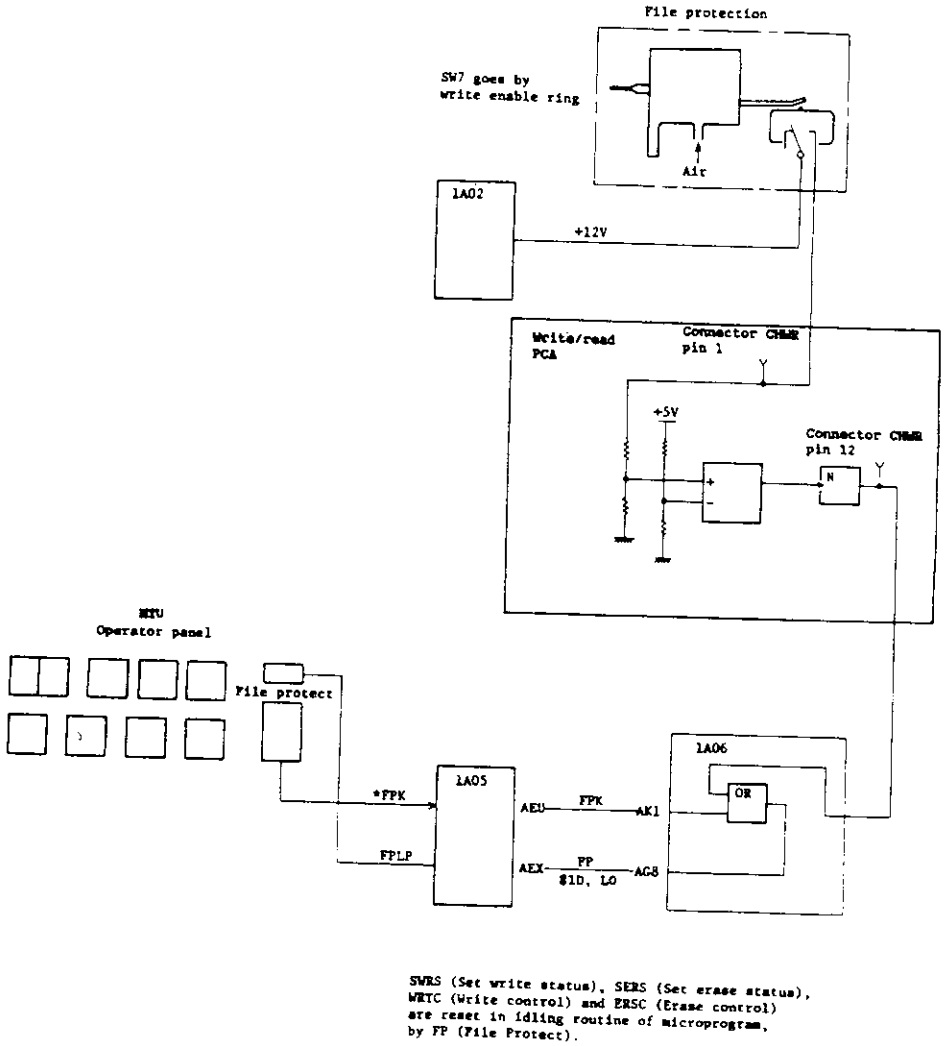


Figure A.32 File protection and lamp troubleshooting

Notes:

(1) SWRS (set write status), SERS (set erase status), WRTC (write control), and ERSC (erase control) are reset by FP (file protect).

(2) Monitor FP at register address $1D, Lamp 0 using the field tester.

(3) Monitor FPK at the MTU logic gate motherboard at location AEU.

A6000	Error Code 30

Error Marker Drive.

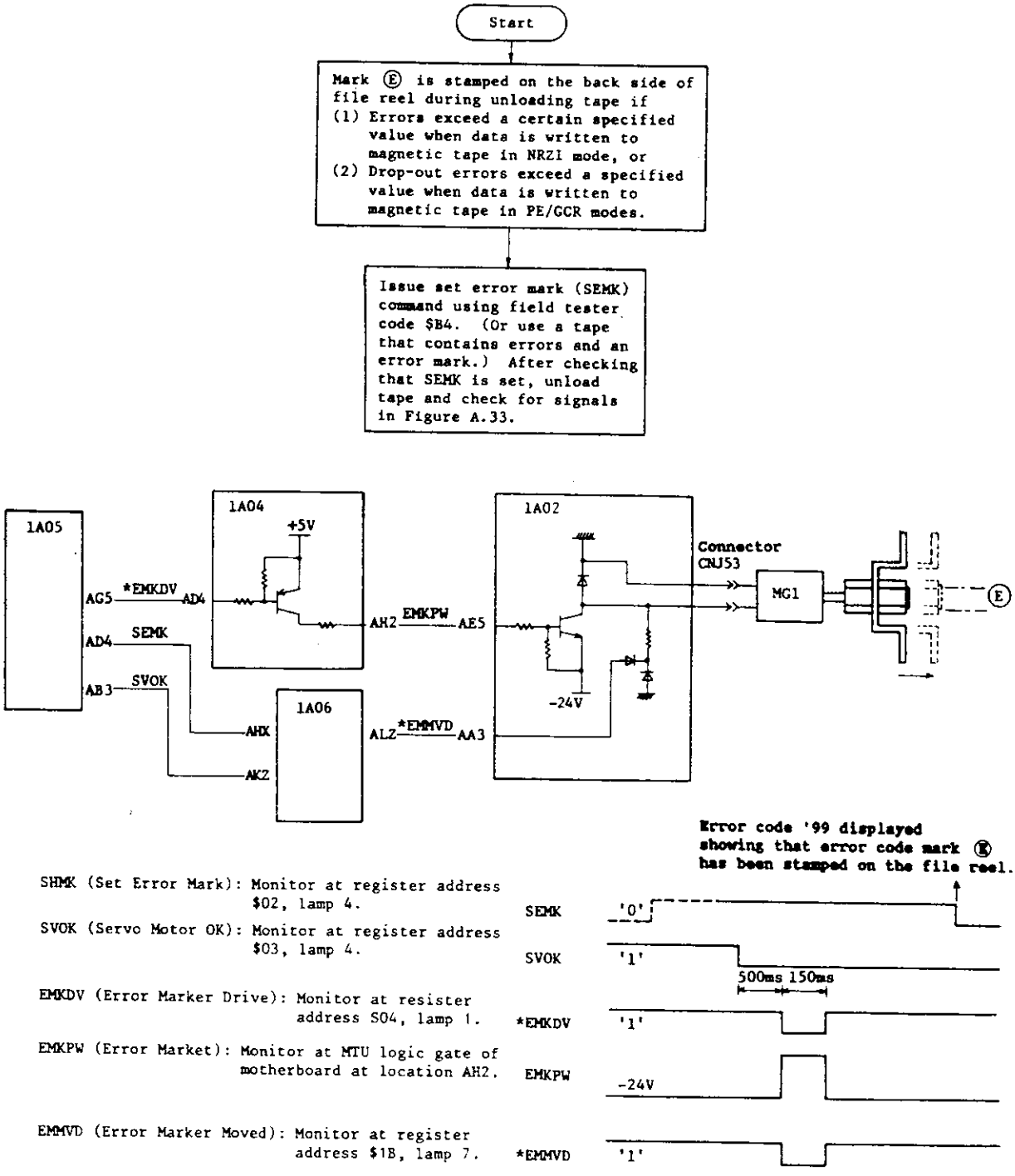
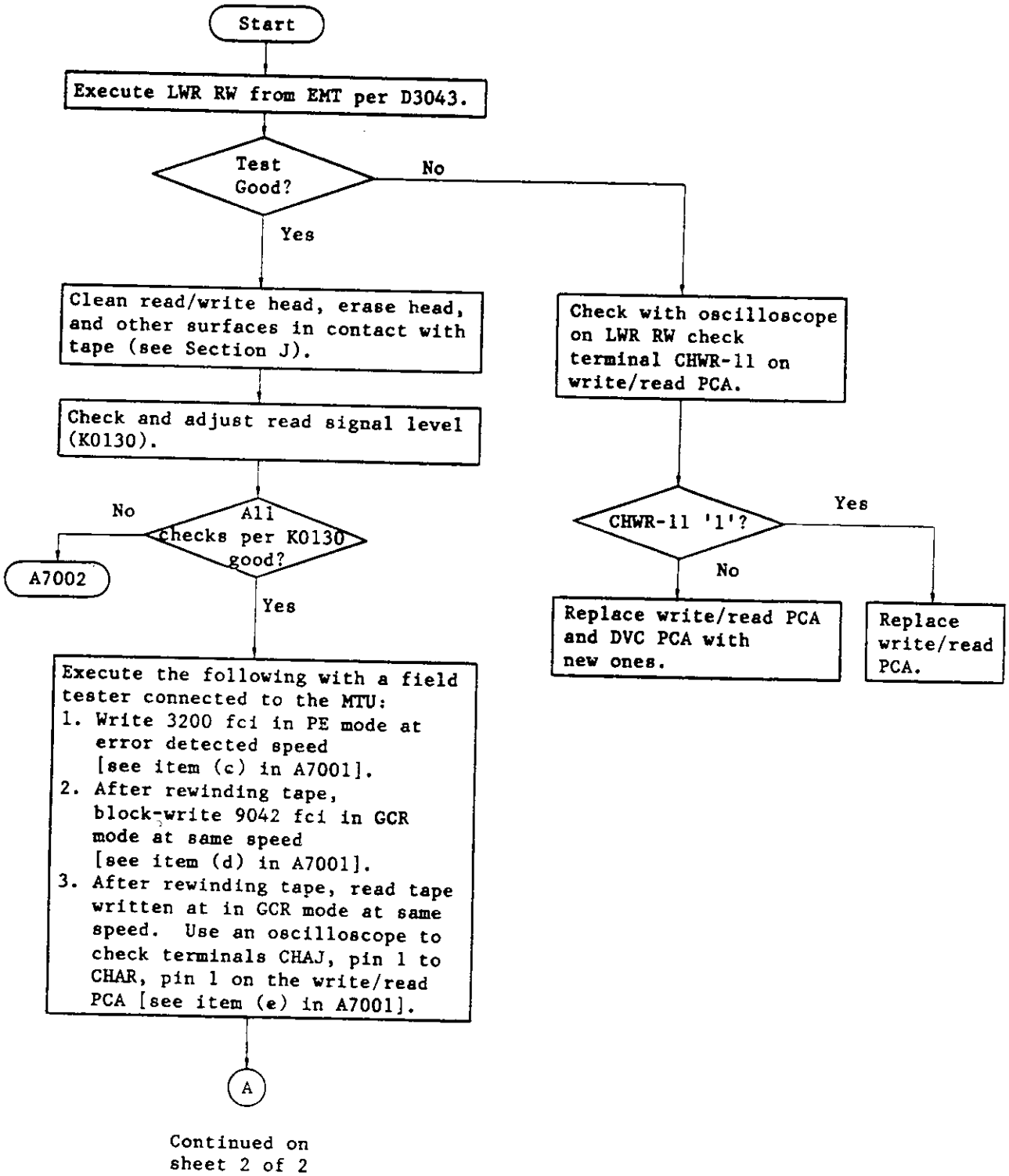


Figure A.33 Troubleshooting Error Code 30

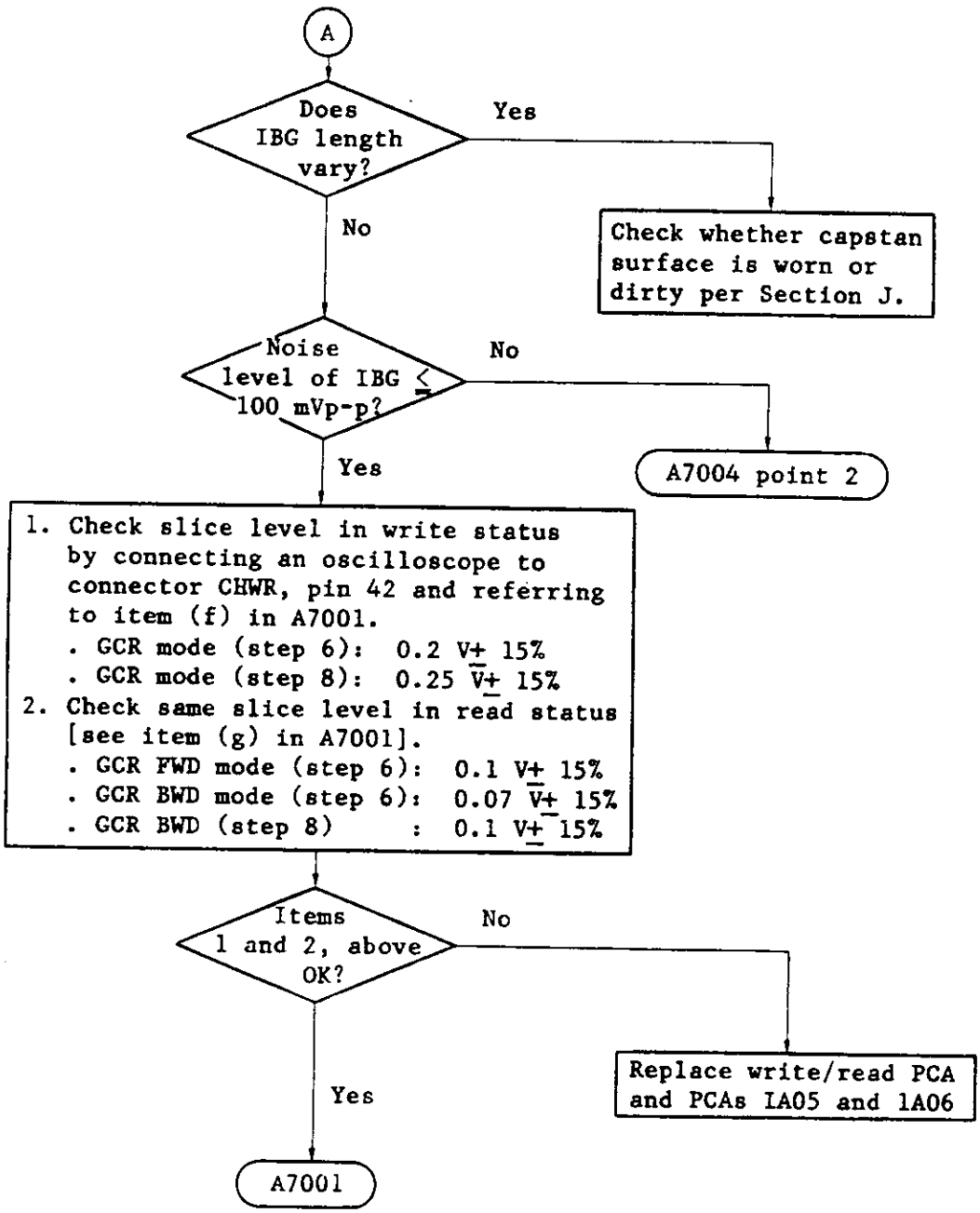
A7000	Read/Write Troubleshooting



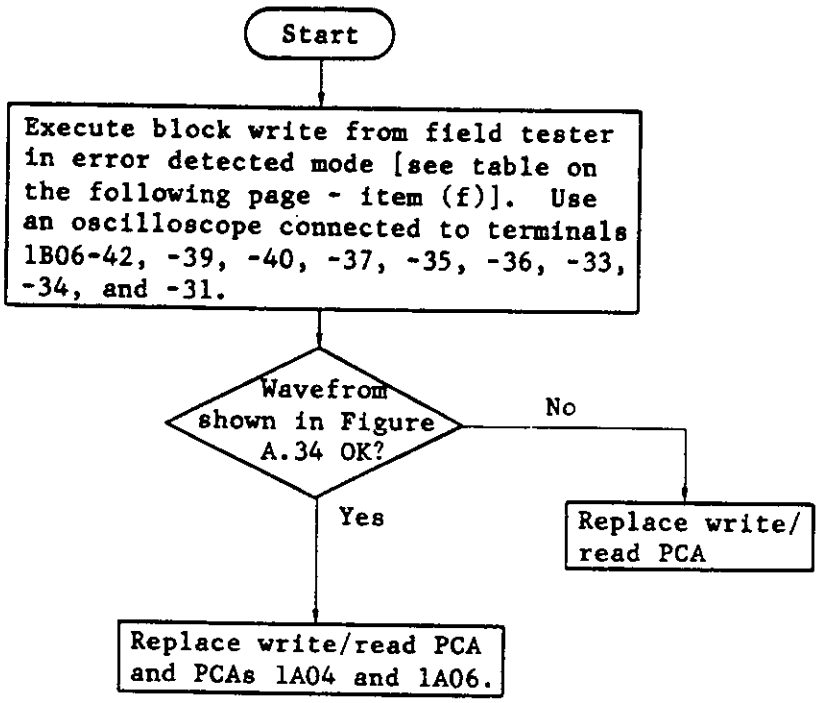
Continued on sheet 2 of 2

A7000	Read/Write Troubleshooting

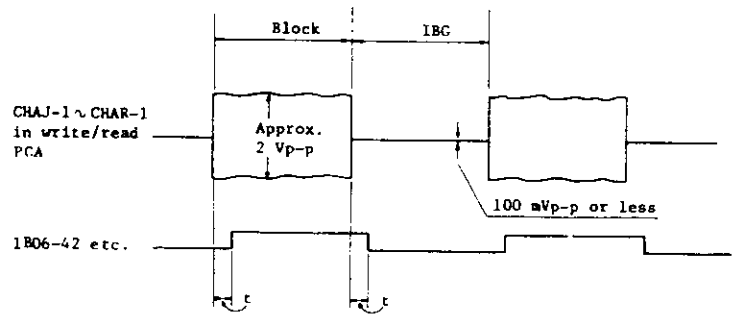
From sheet 1 of 2



A7001	Read/Write Troubleshooting



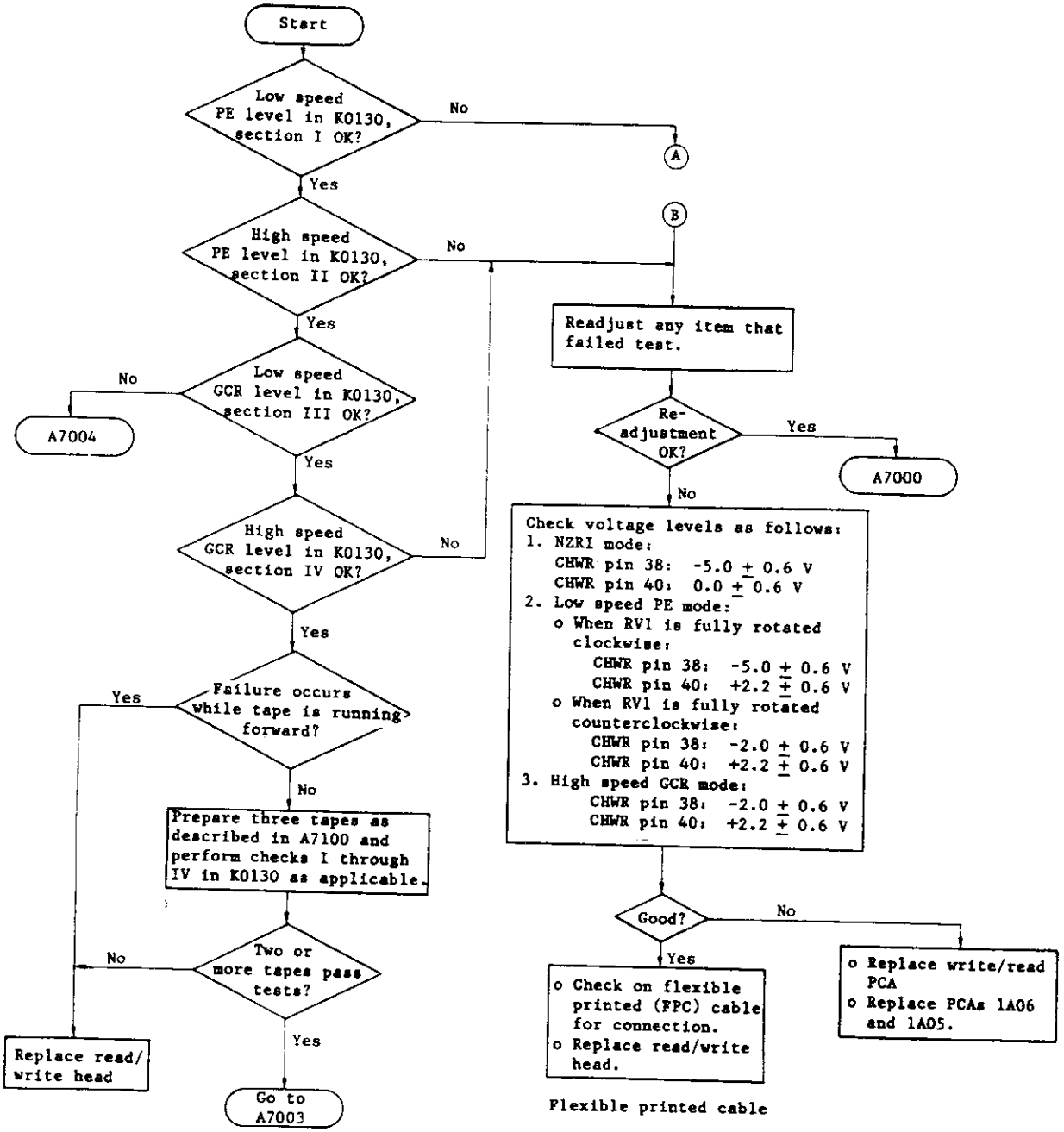
Item	Operation	Procedure	Field tester Code	Setting switch	Remarks
(a)	Write mode	1	Low speed PE : $E8 Low speed GCR : $EA High speed PE : $EC High speed GCR: $EE	SSS	
(b)	Read mode	1	Low speed PE : $E0 Low speed GCR : $E2 High speed PE : $E4 High speed GCR: $E6	SSS	
(c)	PE 3100 fci write	1	Set to write mode at item (a)	SSS	
		2	$89	SSS	
(d)	Block write	1	Set to write mode specified at item (a)	SSS	
		2	$25	SSS	
(e)	FWD read	1	Set to read mode specified at item (b)	SSS	
		2	Low speed : $01 High speed: $02	SSS	
(f)	GCR write mode with specified step	1	Step specification: Step 6: $C6 Step 8: $C8	Toggle SSS switch twice	First toggle causes tape to run; second causes tape to stop
		2	Low speed GCR write: SEA	SSS	
(g)	GCR read mode with specified step	1	Step/running direction specification: FWD step 6: $C6 FWD step 8: $C8 BWD step 6: $D6 BWD stpe 8: $D8	Toggle SSS switch twice	First toggle causes tape to run; second causes tape to stop



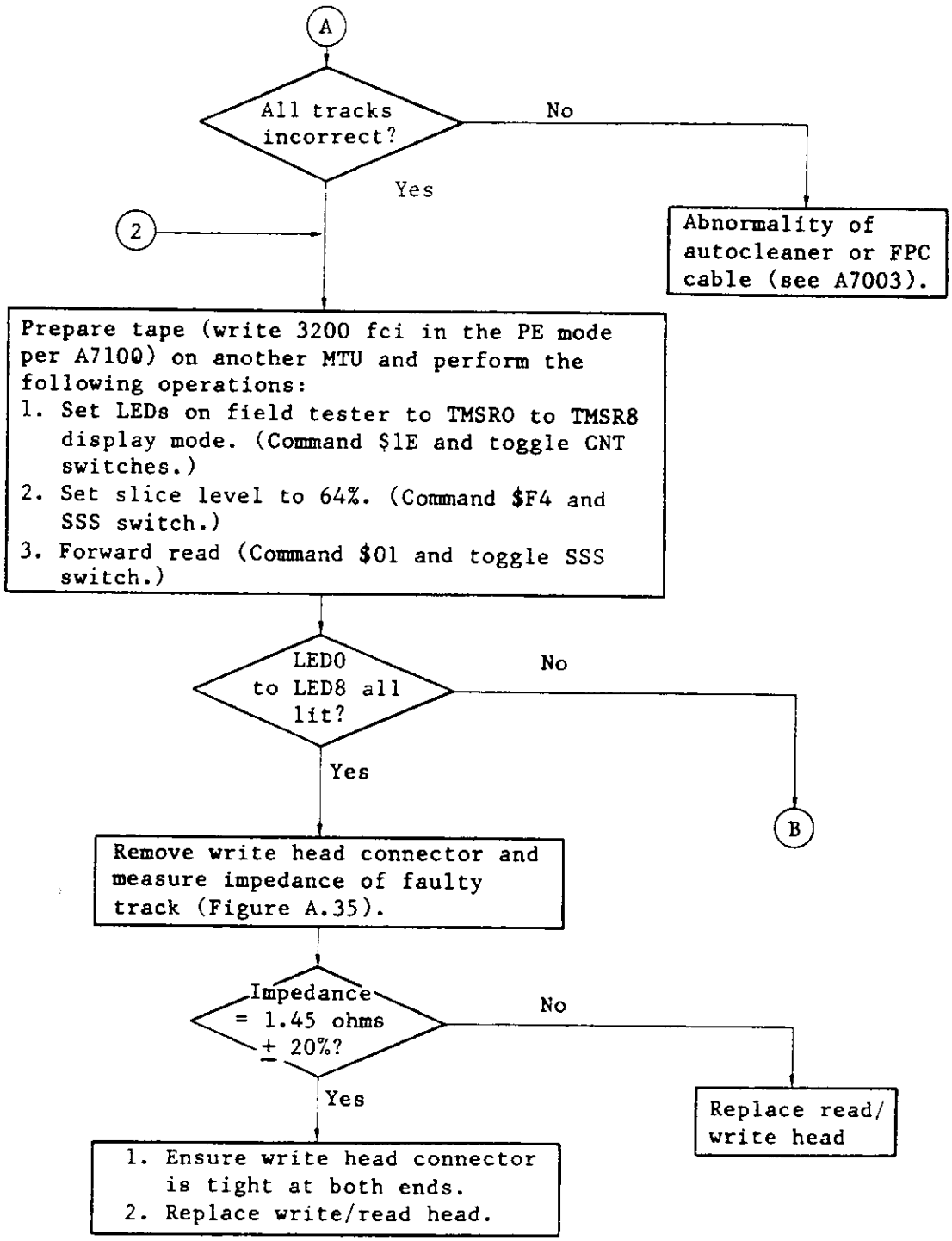
t = 15 μs±30% (Tape speed; 75 ips)
t = 9 μs±30% (Tape speed; 125 ips)
t = 6 μs±30% (Tape speed; 200 ips)

Figure A.34 Read/write troubleshooting

A7002	Read Level Abnormal



A7002	Read Level Abnormal



A7002	Read Level Abnormal

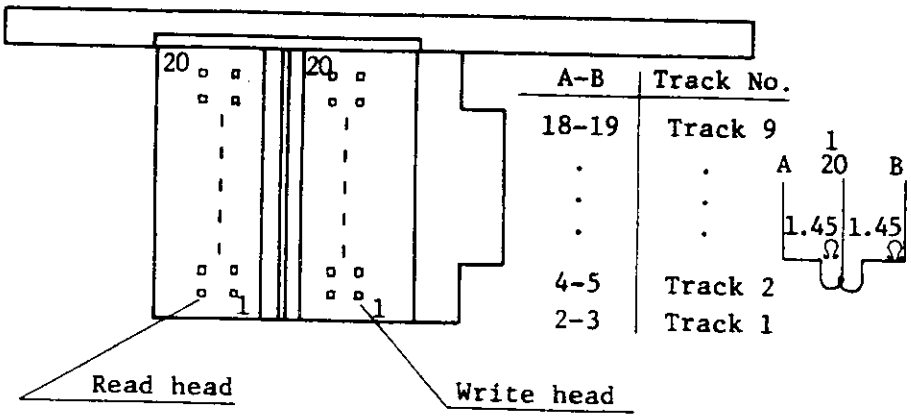
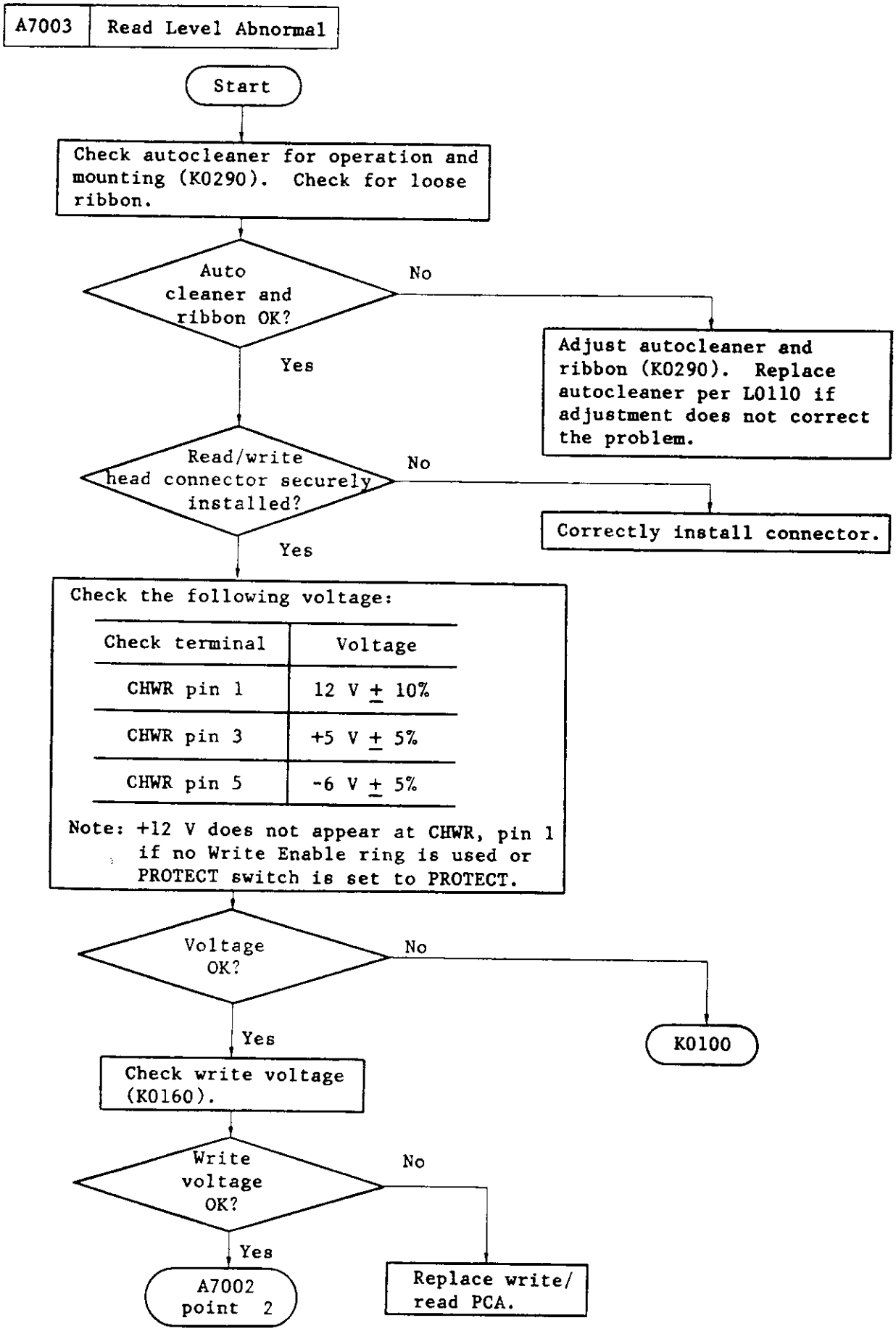
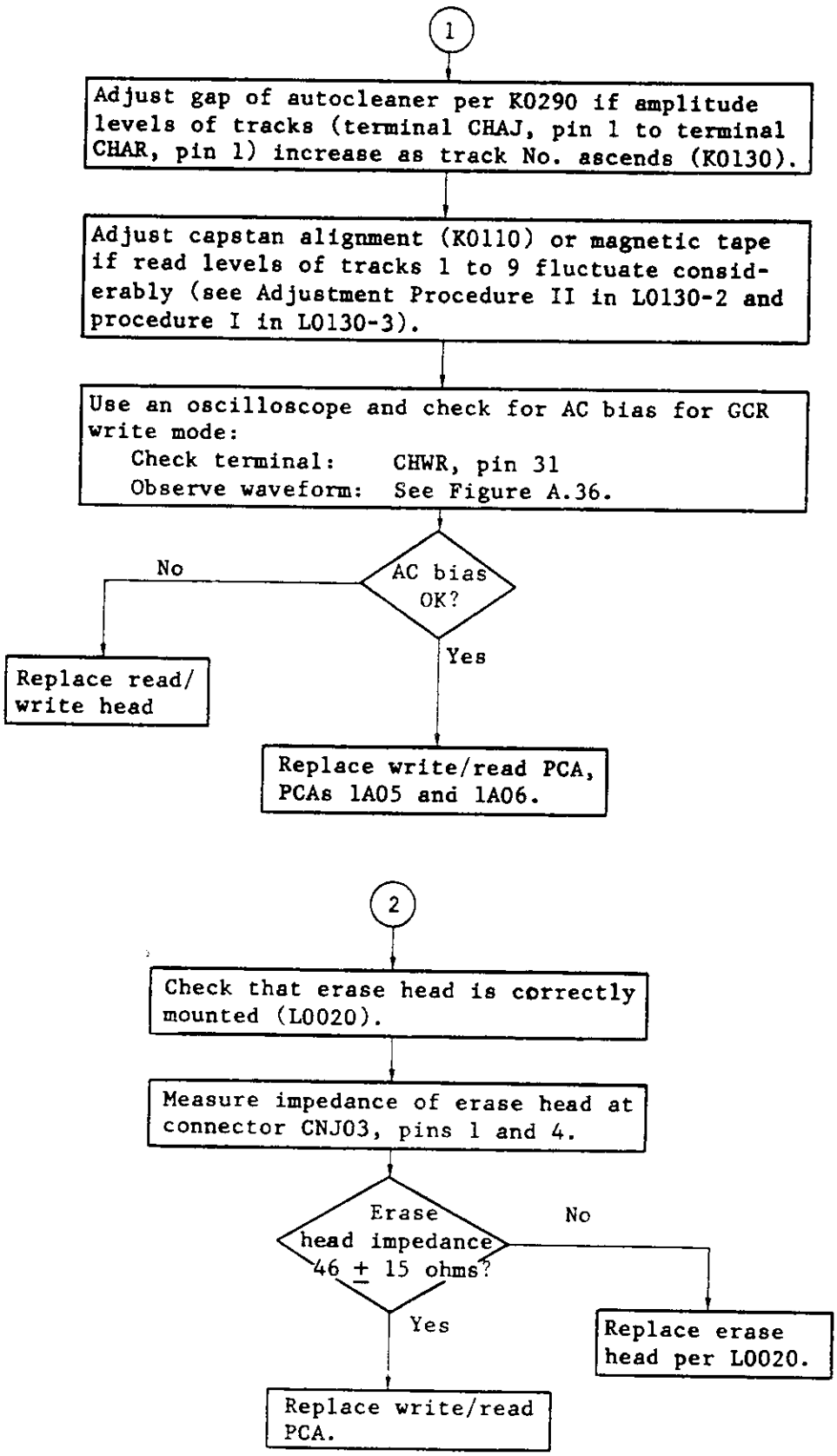
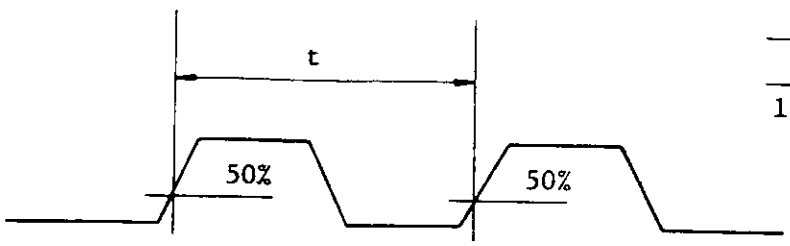


Figure A.35 Read/write head (viewed from head connector side)


A7003
Read Level Abnormal
Start
Check autocleaner for operation and mounting (K0290). Check for loose ribbon.
Auto cleaner and ribbon OK?
No
Yes
Adjust autocleaner and ribbon (K0290). Replace autocleaner per L0110 if adjustment does not correct the problem.
Read/write head connector securely installed?
No
Yes
Correctly install connector.
Check the following voltage:
Check terminal
Voltage
CHWR pin 1
12 V ± 10%
CHWR pin 3
+5 V ± 5%
CHWR pin 5
-6 V ± 5%
Note: +12 V does not appear at CHWR, pin 1 if no Write Enable ring is used or PROTECT switch is set to PROTECT.
Voltage OK?
No
Yes
K0100
Check write voltage (K0160).
Write voltage OK?
No
Yes
A7002 point 2
Replace write/ read PCA.

A7004	Read Level Abnormal

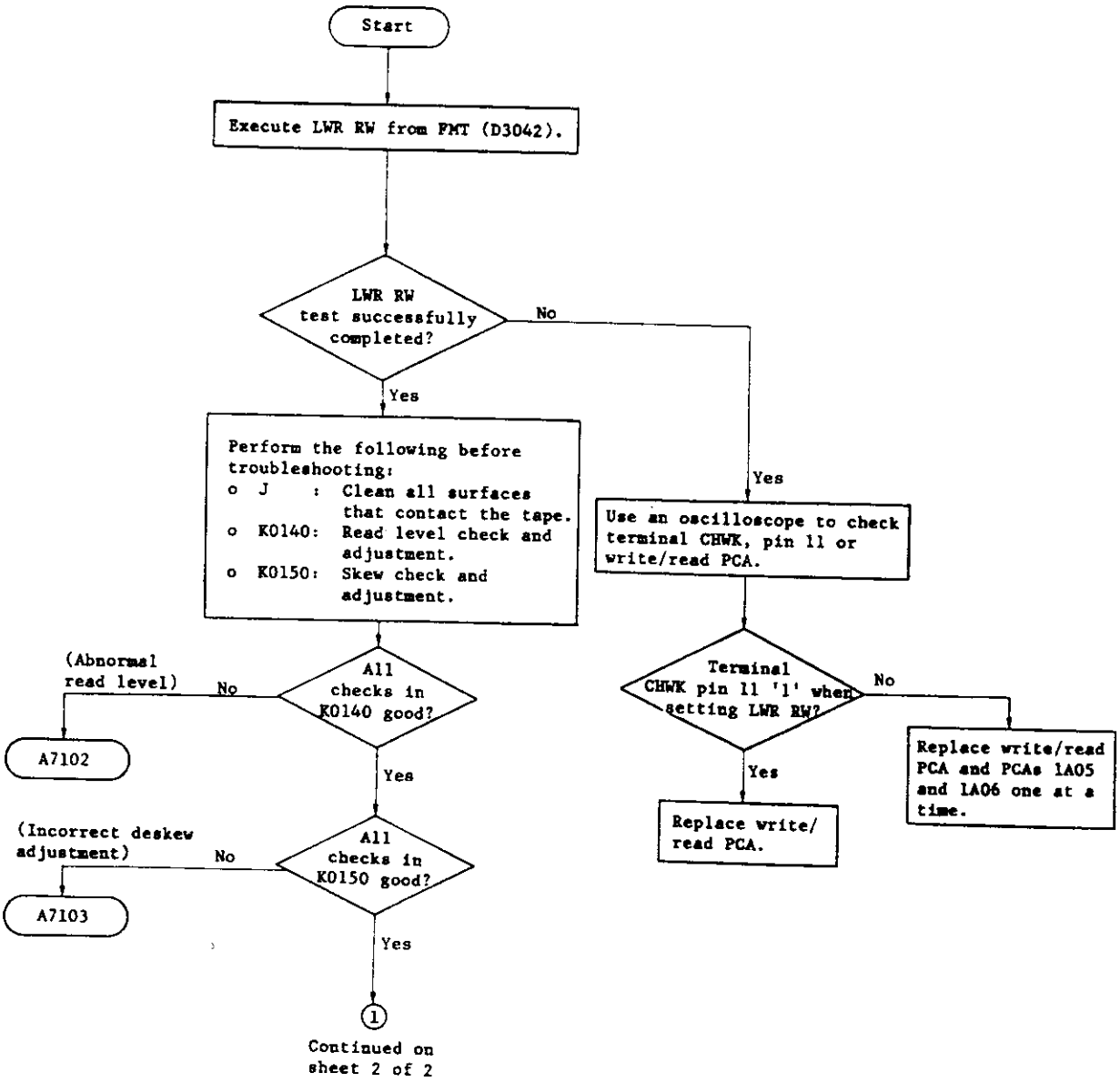




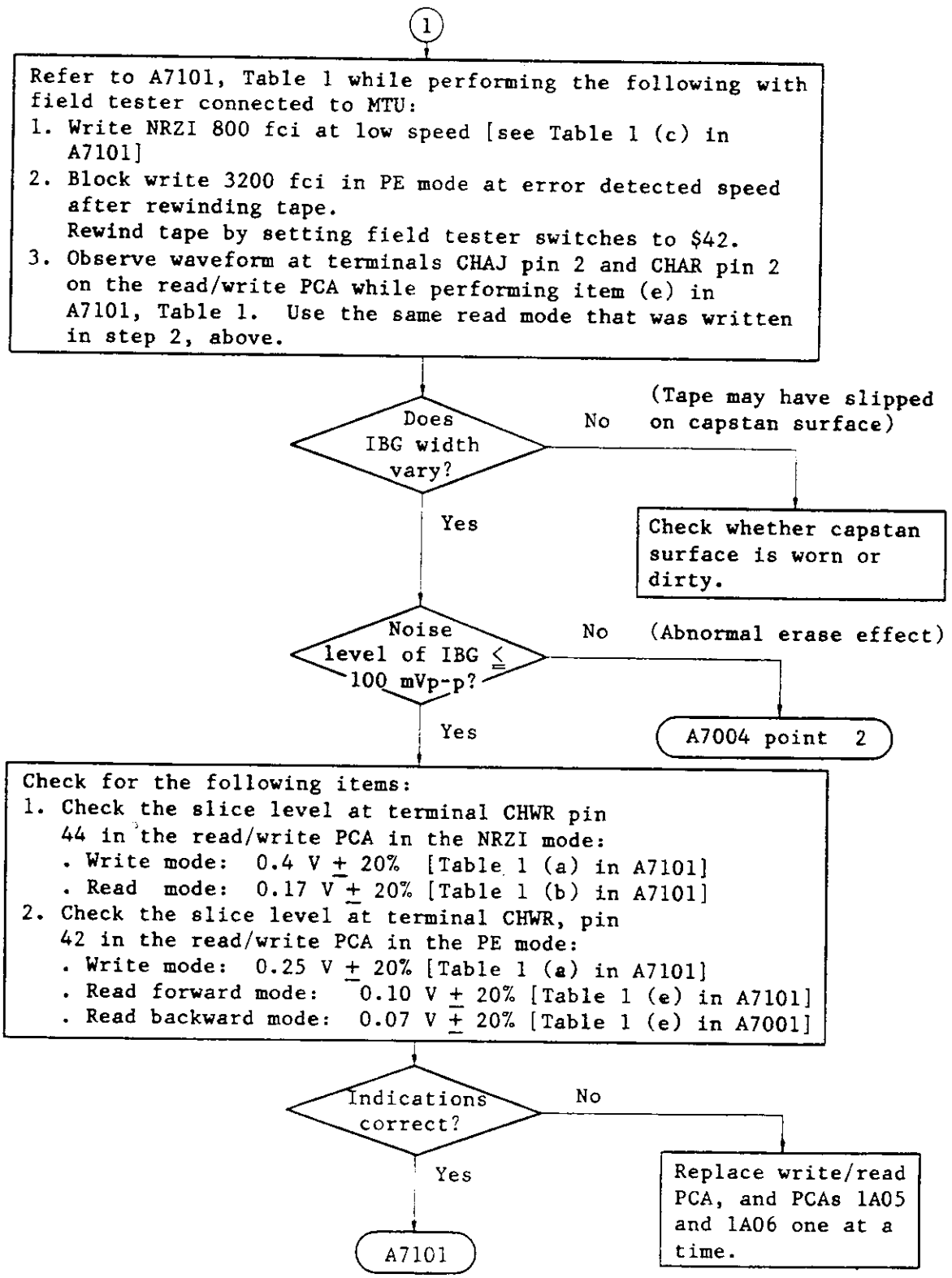
MTU Type	t[ns]
75/125 : IPS MTU	260
125/200 : IPS MTU	160

Figure A.36 AC bias waveform (CHWR pin 31)

A7100	Read/Write Troubleshooting

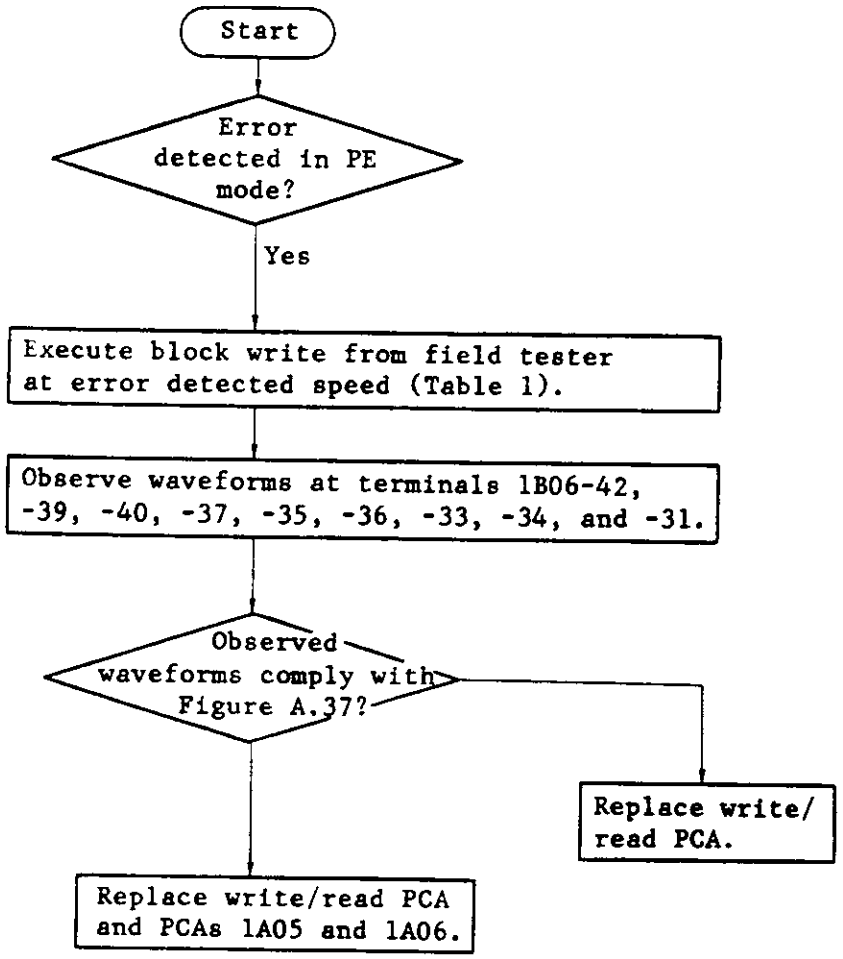


Continued from sheet 1 of 2



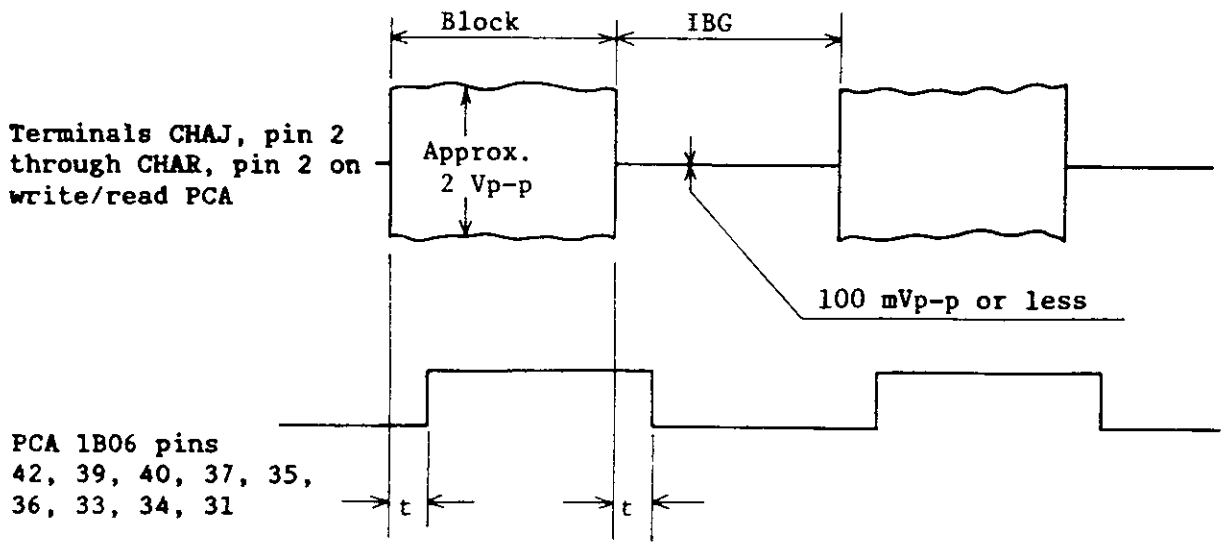
A7101	Read/Write Troubleshooting

Troubleshooting for Read/Write Section (1600/800 rpi MTU)



A7101	Read/Write Troubleshooting

Item	Operation	Procedure	Field tester		Remarks
			Code	Switch	
(a)	Write mode	1	NRZI : $E8 Low speed PE : $EA High speed PE: $EE	SSS	
(b)	Read mode	1	NRZI : $E0 Low speed PE : $E2 High speed PE: $E6	SSS	
(c)	NRZI 800 fci write	1	$89	SSS	
(d)	Block write	1	Set to write mode specified at item (a)	SSS	
		2	$25	SSS	
(e)	FWD read action	1	Set to read mode specified at item (b)	SSS	Do not operate at high speed while in NRZI mode.
		2	Low speed FWD : $01 High speed FWD: $02 Low speed BWD : $41 High speed BWD: $42	SSS	



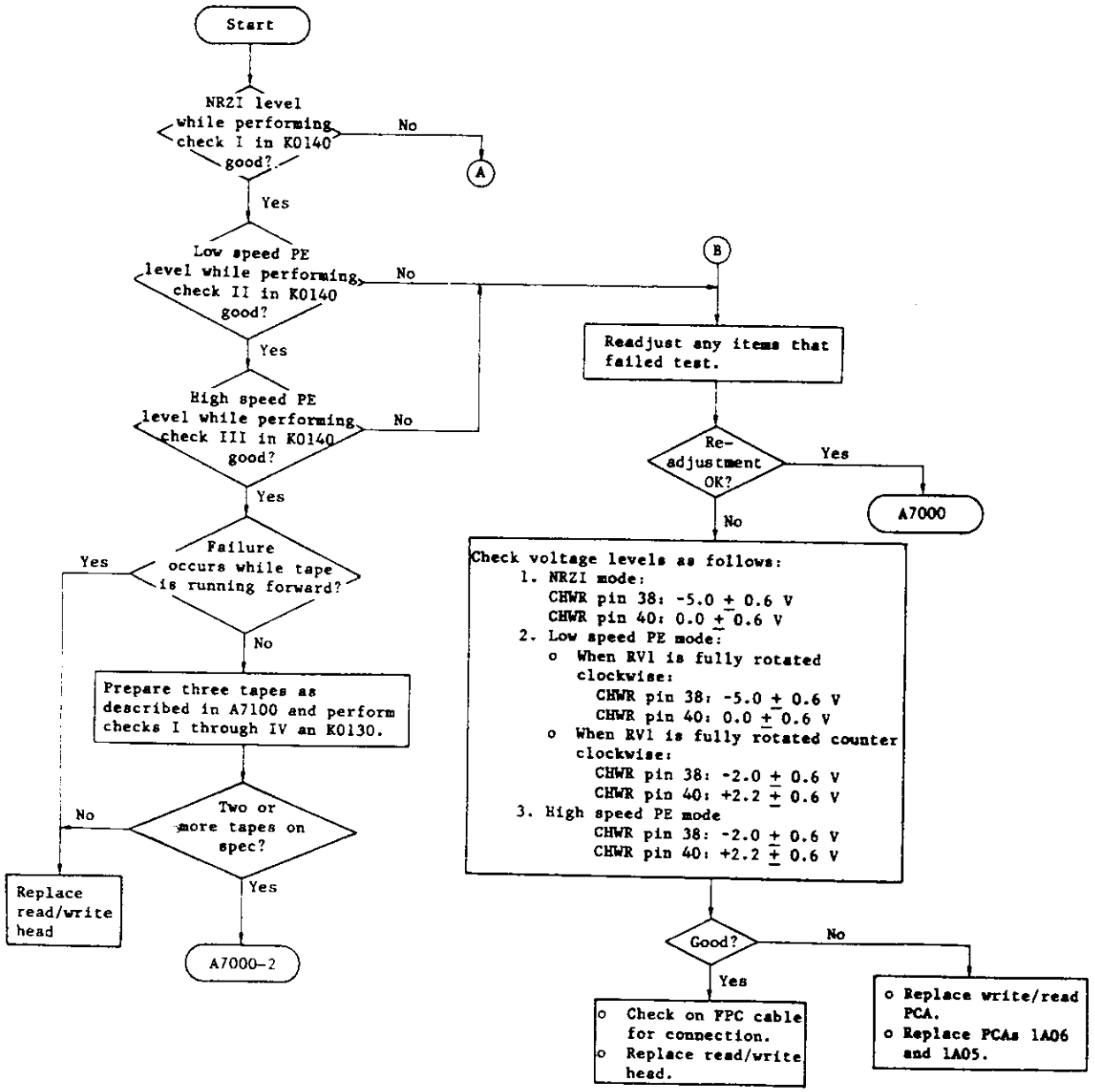
t = 25 μs±30% (for 75 ips)
t = 15 μs±30% (for 125 ips)
t = 9 μs±30% (for 200 ips)

Figure A.37 Read/write troubleshooting

A7102	Read Level Abnormal

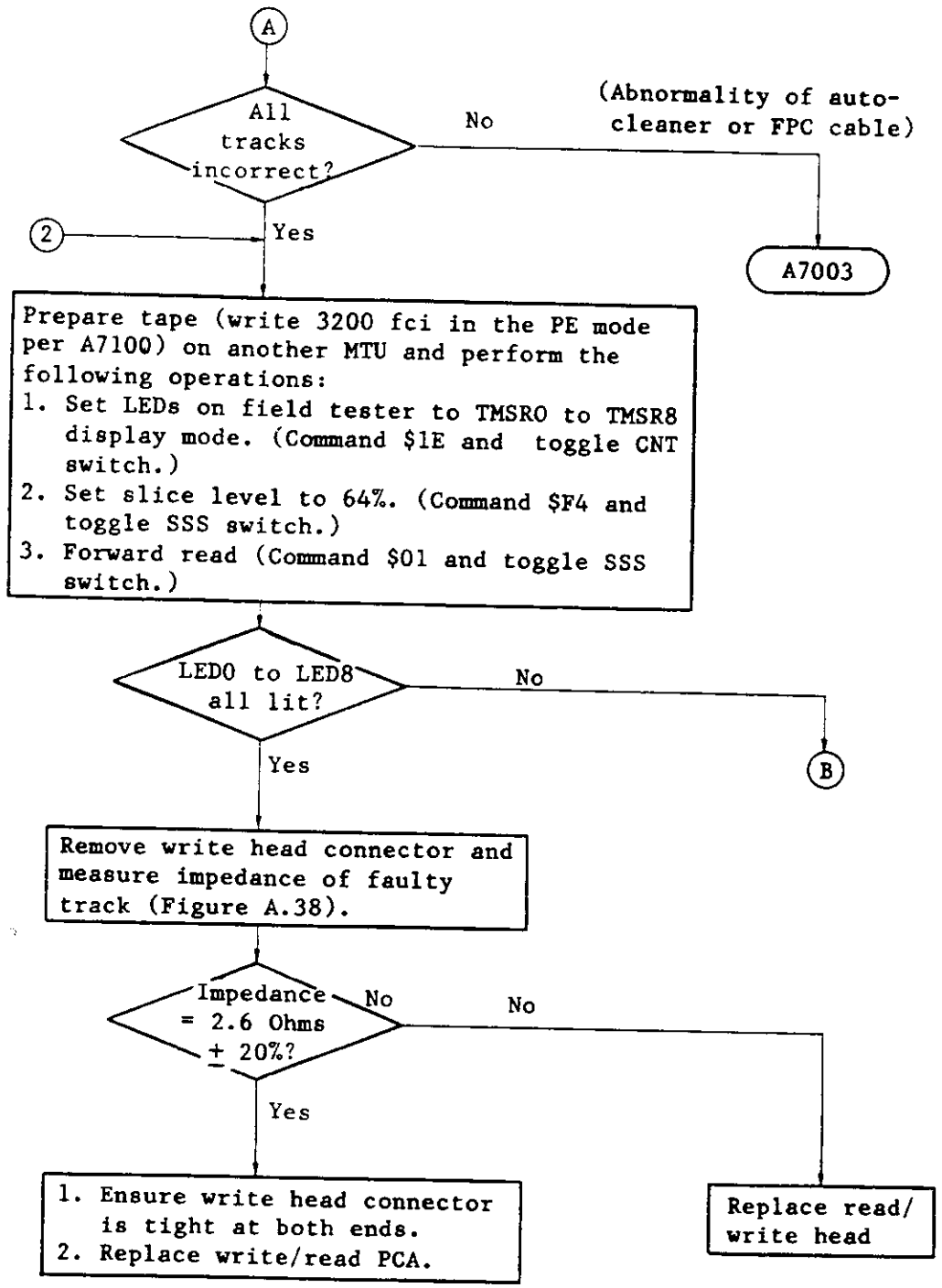
Abnormality for Read Level (1600/800 rpi MTU).

Note: Continued from A7100.



A7102	Read Level Abnormal

From sheet
1 of 2



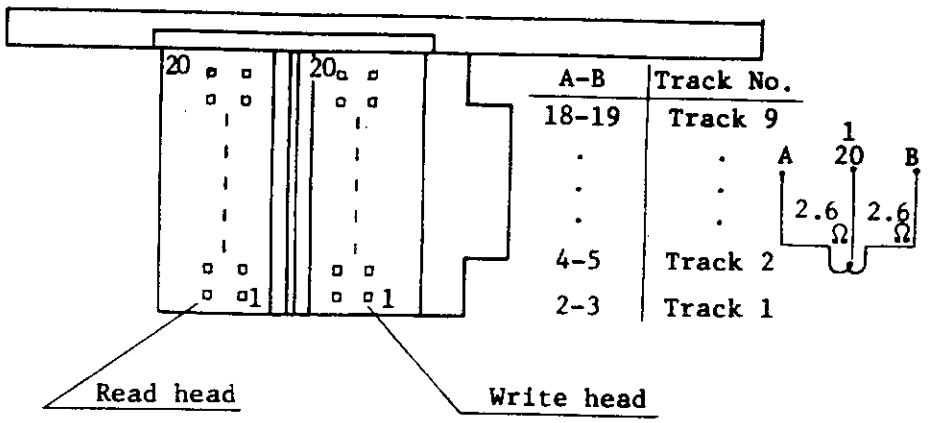
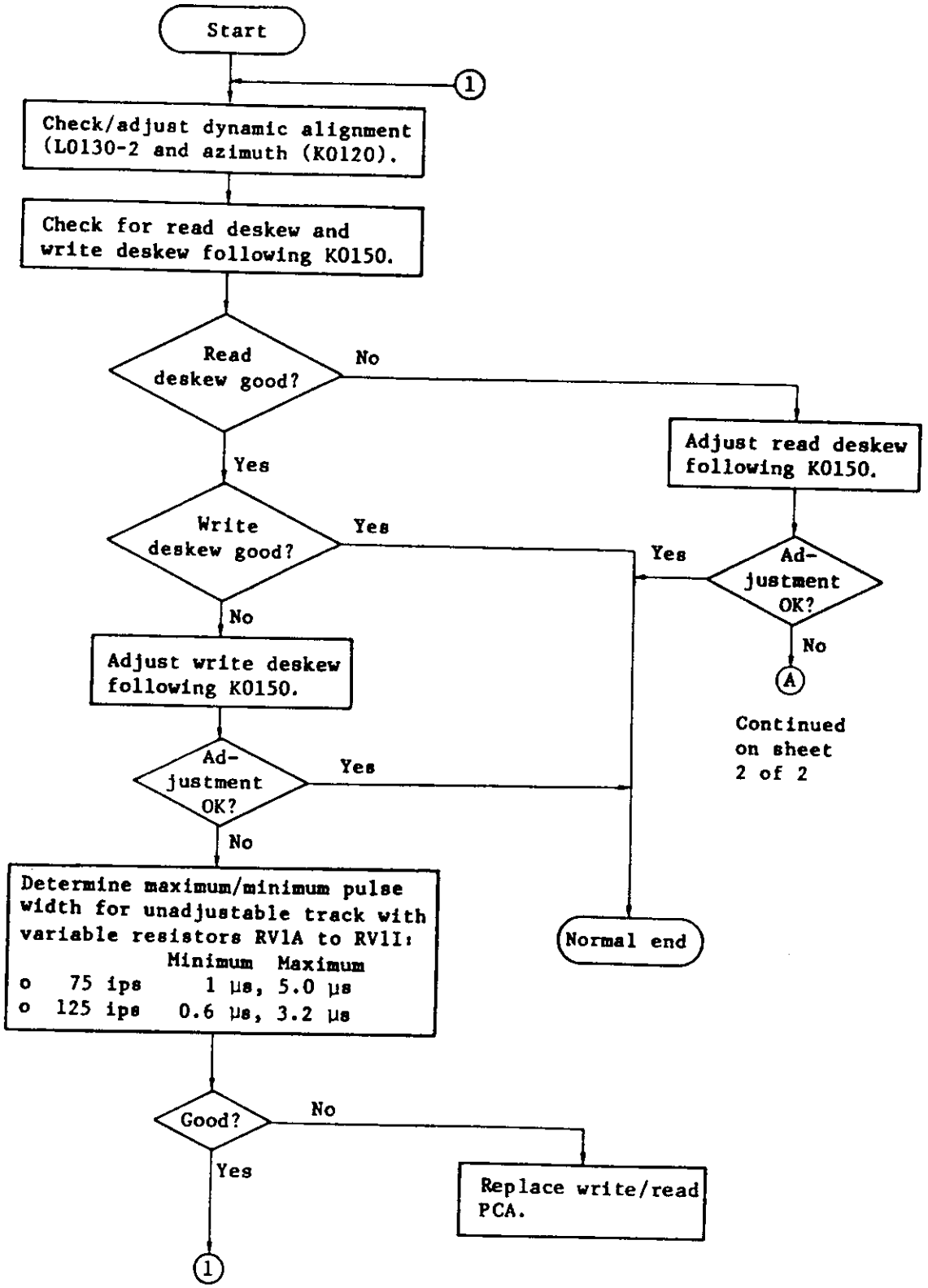


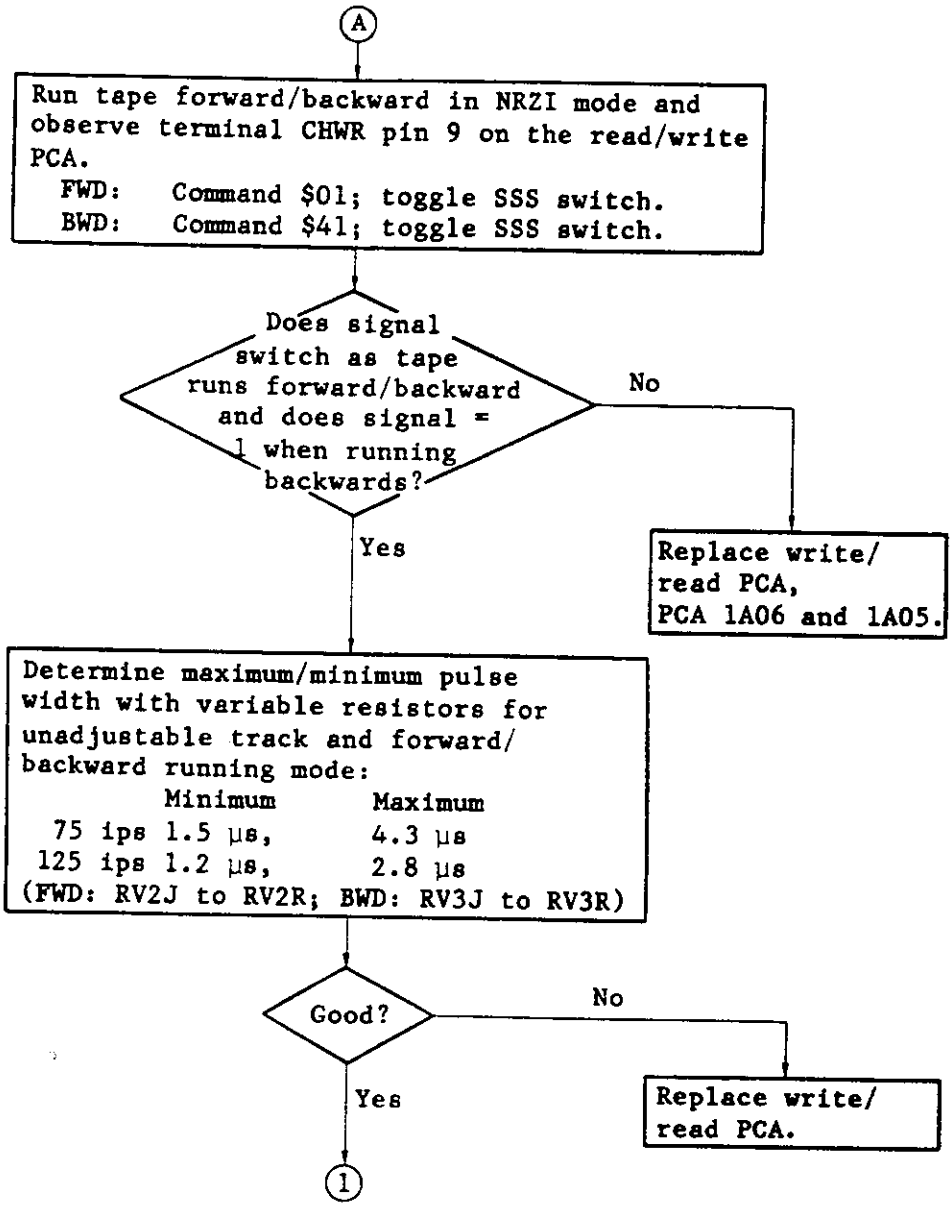
Figure A.38 Read/write head (viewed from head connector side)

A7103	Read Level Abnormal



A7103	Read Level Abnormal

From sheet 1 of 2



to sheet 1 of 2